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A Consolidation of Fire and Water Engineering, The Fire Engineer and Fire Protection

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FRED SHEPPERD
Editor
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Assistant Editor

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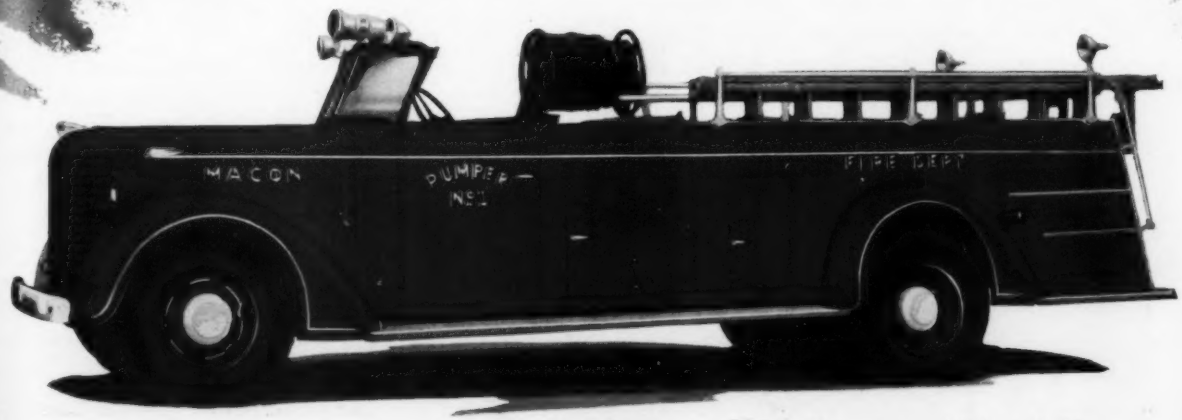

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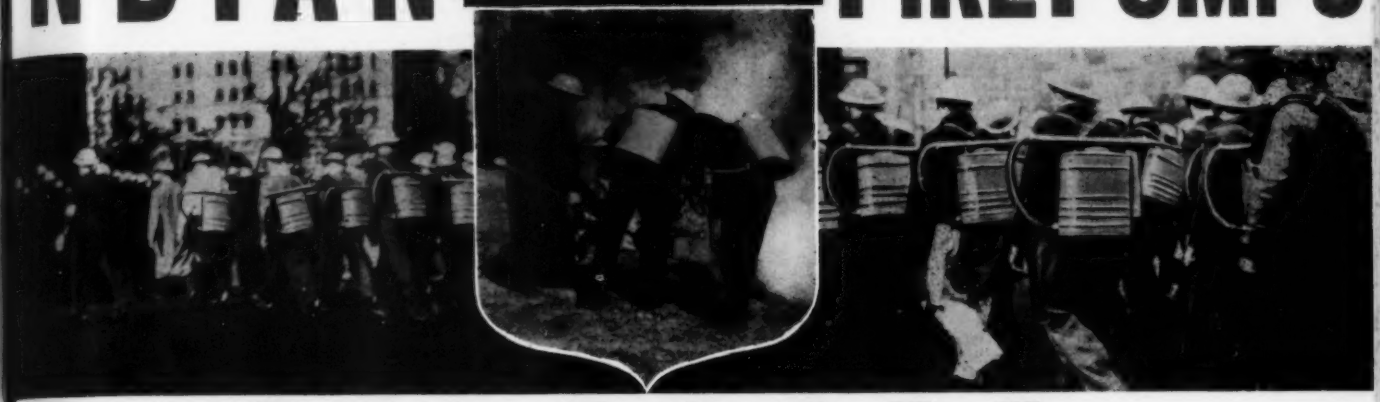

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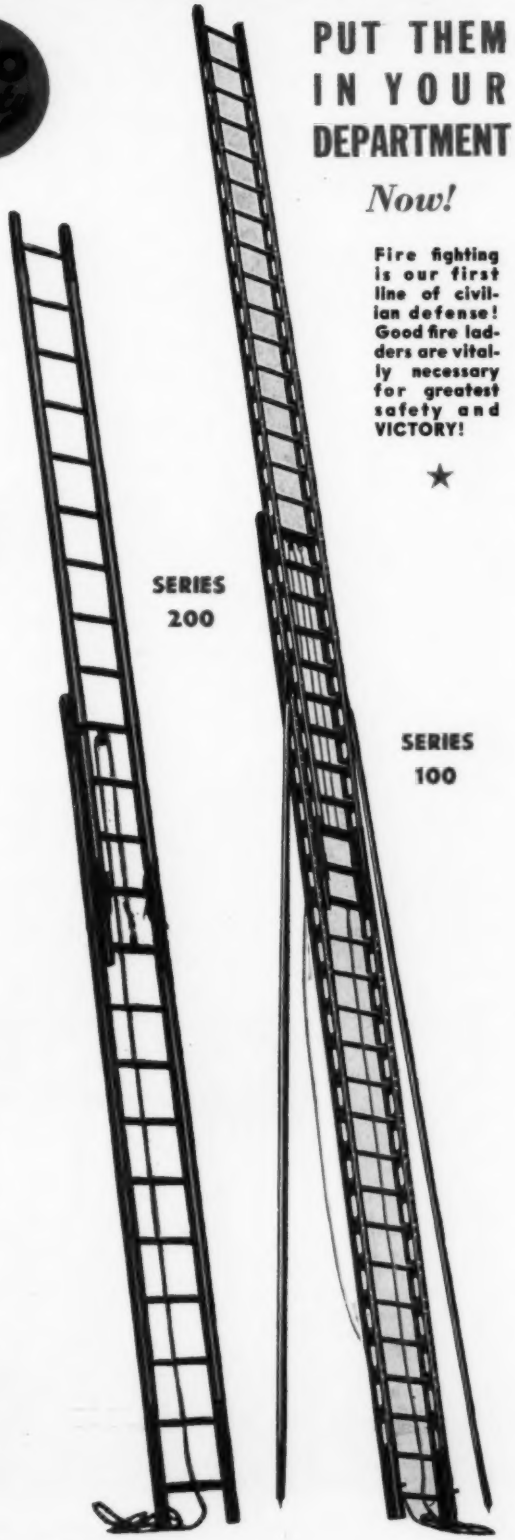

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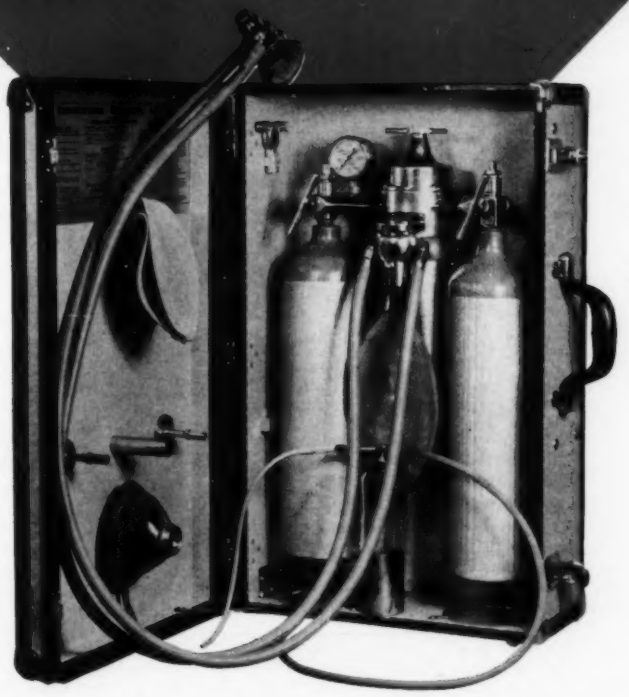

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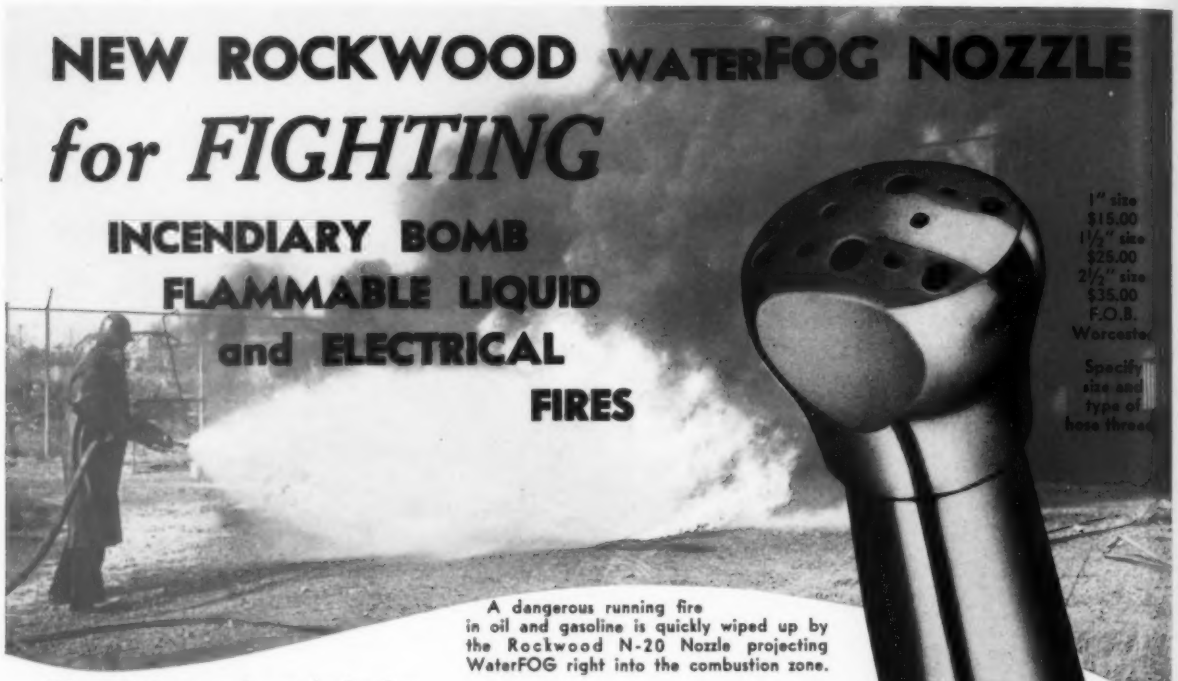

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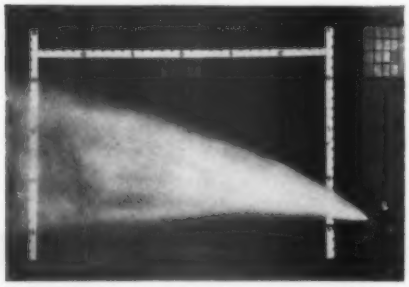

WaterFOG pattern discharged by the new N-20 WaterFOG Nozzle is measured on this huge scale at the Rockwood testing grounds.

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MAY, 1942 VOL. 95. NO. 5

With the Editor

Firemen Should Be Deferred In a letter to the International Association of Fire Chiefs, relative to deferment of professional firemen, Major G. H. Baker, of the Office of Director, Selective Service, Washington, D. C., said:

> "Selective Service Regulations make provisions for the deferment of any registrant who is found to be a necessary man in any service, the maintenance of which is necessary to the National health, safety or interest. Each case must be considered on its own merits at the time of classification. In addition to establishing the qualifications of this individual, by reason of his training and experience, it must also be shown that there is a shortage of available men with the required training, qualifications of skill, and that if the registrant were removed he could not be replaced, and further, that if he were removed and his occupation left vacant his removal would cause a serious loss of effectiveness in such activity.
>
> "If the head of a fire department considers that one of his men can meet the above requirements for deferment, he may file a Form 42-A, "Affidavit to Support Request for Occupational Deferment" to the local board classifying such individual."
>
> "An appeal from a local board classification may be made by an employer, in this case by the head of the fire department within ten days after the date when the local board mailed to the registrant a notice of classification (Form 57). This may be done by writing a letter to the local board stating that an appeal is desired, or the appeal can be entered simply by signing in the appropriate section of the questionnaire, at the office of the local board."

The trained firefighter is a "necessary man in any service, the maintenance of which is necessary to the National Safety. . . ." For it has been proven abroad that this is in large measure a firemen's war. On this side of the water, national fire losses are already increasing by leaps and bounds, and we haven't yet had an enemy air raid. Many vital war industries plants have already been damaged or destroyed by fire. The only antidote for such losses is a stronger fire service.

That there is a "shortage of available men with required training, qualifications or skill" is acknowledged by fire protection authorities throughout the country. Despite tremendously increased fire hazards, due to congestion in war industries plants, haste, green workmen, overloaded inventories, crowded storage of finished munitions, and sabotage, fire departments are today at the ebb of personnel strength. No supply of trained firemen is available from which fire departments may draw; and it takes from three to five years to make a skilled firefighter. Some have already entered defense industries, either as mechanics or firefighters; the draft threatens further inroads into the depleted supply of these highly trained specialists.

Today, the "registrant cannot be replaced!" The army is taking the very men who have the qualifications to enter training to become firefighters; no ready-trained firemen are to be had. In these times of rapidly growing fire hazards, men unfit for military duty could not qualify physically as firefighters. Only men of prime physical condition can carry hose lines up tall ladders, or up through lofty, smoke-filled structures, and perform fire fighting operations.

The removal of a skilled firefighter "would cause a series loss of effectiveness" to the fire department. He is irreplaceable. Fire departments are undermanned today, despite the tremendous increase in responsibilities they must face. A single bomber raid might cause so many fires in large buildings that it would be impossible to assign even one trained fireman to supervise each fire. To inexperienced auxiliaries alone would thus be entrusted the task of handling a major fire.

To the trained firemen must fall the task of training auxiliaries, thus, increasing the burden on the depleted ranks of skilled firefighters. Some departments will find it difficult, or impossible, to spare men for this purpose.

When it is pointed out that it takes much longer to train a firefighter than a soldier; that skilled firefighters entering the army are usually assigned to cantonment fire departments to do fire fighting duty far easier, far simpler, than the municipal fire service; that protection of war industries against fire is vital to the success of nation's efforts, only one conclusion can be drawn: that trained firefighters are of greater service to the nation in their present capacity than they would be if inducted into the miltary service.

Today, fire defense is national defense!

Fred Oberfell

Reach of Large Streams

Some Interesting Calculations are Presented on Ranges of Fire Streams of Larger Size

By H. A. MUSHAM
Naval Architect*

CONSIDERABLE experimental work has been done on fire streams, notably by Freeman, Marston, Fleming and the Associated Factory Mutual Fire Insurance Companies (1). These experiments, extensive though they were, covered nozzle pressures up to 100 pounds per square inch and tips up to 3½ inches in diameter only. Additional experiments by the Chicago Fire Department and the National Board of Fire Underwriters in recent years have extended the pressure range somewhat, but the results have not as yet been made available for study. These notes are based on the first four sets of experiments, mainly those by Freeman, and extends them by mathematical analysis to cover all pressure and tips now in use or likely to be used in the future.

Elements of a Fire Stream

These completely define the character of a fire stream and are:

a. Diameter of the orifice or tip of the nozzle in inches.

b. Area of the tip in square feet.

c. Pressure under which the water leaves the tip in pounds per square inch.

d. Velocity at which the water leaves the tip in feet per second.

e. Elevation of the tip or the angle the center line of the nozzle makes with the horizontal in degrees.

f. Capacity or discharge of the tip in gallons per minute.

g. Effective reaches; horizontal and vertical, or the distances horizontal and vertical, to which water can be thrown in still air without losing its effectiveness for fire purposes.

h. Maximum reaches, horizontal and vertical, or the greatest distances, horizontal and vertical, to which water can be thrown in still air.

i. Vacuum reaches, horizontal and vertical, or the distances, horizontal and vertical, to which water can be thrown into a vacuum.

Once these elements are completely known the practical application of a fire stream can be easily determined and it becomes possible to design and build fire pumps to meet any particular conditions, and to deliver any specified stream on the fire. Fire fighting equipment should be designed from the fire back to the pump or other apparatus and not from the pump to the fire.

Vacuum Reach

This can be determined with accuracy if a fire stream is considered as being made up of a succession of slugs of water. The individual slugs can then be regarded as bullets and the theory of projectiles can be used as basis for analyzing their behavior. In a vacuum a stream from a perfect nozzle would attain the reaches corresponding to the pressure at the tip and in the same solid form as it left the tip except for the wastage caused by gravity. This would be the ideal stream. The air however is always present, otherwise there could be no fires nor would we be here, and it opposes the passage of the water and cuts down the reaches that could be attained in a vacuum to what can be properly called the maximum reaches.

Maximum Reach

In the experiments referred to, the maximum reaches were taken as the center of the scattering or spattering of the farthest drops. It is an easy matter to determine the maximum horizontal range but the vertical reach presents difficulties of observation. Consequently data are lacking on this point. The extreme portions of fire streams are in the form of spray, light rain or mist depending upon the conditions of the air, which, while of little value for direct fire fighting, has value for cooling off structures or for use as a screen to break the transmission of heat.

Freeman classified streams as effective streams when for a given pres-

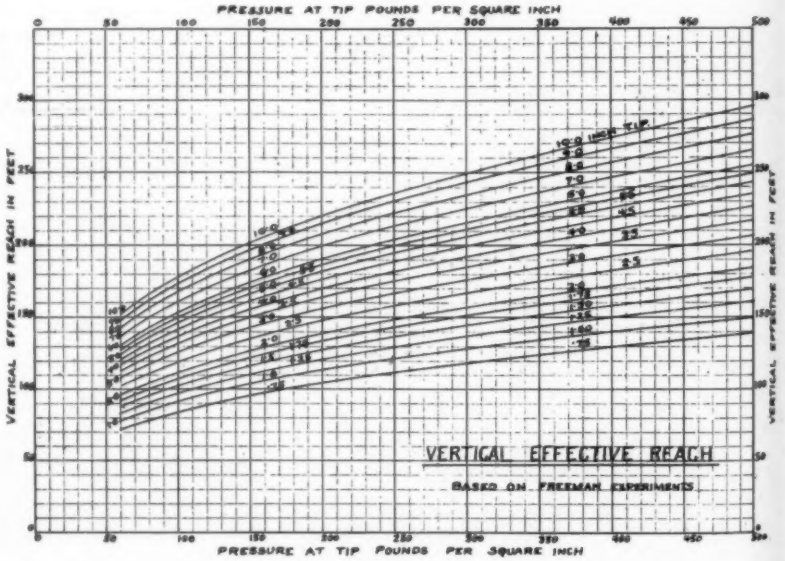

PRESSURE AT TIP POUNDS PER SQUARE INCH
VERTICAL EFFECTIVE REACH IN FEET
VERTICAL EFFECTIVE REACH
BASED ON FREEMAN EXPERIMENTS
PRESSURE AT TIP POUNDS PER SQUARE INCH

Figure 1.

*741 Rush St., Chicago, Ill.

sure they entered a window and struck the ceiling with barely enough force to spatter it well and which at this limit had not lost continuity of stream by dividing into a shower of spray, and which further at this limit appeared to shoot 0.9 of the whole body of the stream inside a 15 inch circle and 0.75 of it within a 10-inch circle as nearly as he could judge. The choice of these conditions was purely arbitrary on his part, but the choice in general was good and it established a standard by means of which streams can be compared and tied in to his experiments. Recent practice however is to discard it and accept in its place the distance from the tip where the stream appears to break into slugs of water which are still closely grouped and effective for fighting fires. This effective reach evidently is that which Freeman and Marston took as the reach for a fair stream. In this study Freeman's definition has been adhered to and relations have been established by means of which his effective reaches can be converted into those advocated in recent years.

Freeman's Data Used

Adjusting Freeman's data with later experiments and plotting them on logarithm paper it is possible to extend them with a degree of accuracy within the limits of error, 2 to 3 percent, of the original experiments, to cover all ranges and tips in common use or which are likely to be used in the future as shown by the two charts herewith (Fig. 1 and Fig. 2).

Relations Between the Different Reaches

Vacuum horizontal reach = 3.98 × tip pressure for elevation of 32°.
Maximum horizontal reach = 2.5 × horizontal effective reach.
Horizontal effective reach for fair stream = 1.3 × horizontal effective reach for good stream.
Vacuum vertical reach = 2.3 × tip pressure.
Vertical effective reach for fair stream = 1.167 × vertical effective reach for good stream.

Horizontal and vertical effective reaches are obtained from Figures 1 and 2. As the vertical effective reaches are for 90° elevation, the reaches for other elevations are found by multiplying those as given by Fig. 2 by the factors below:

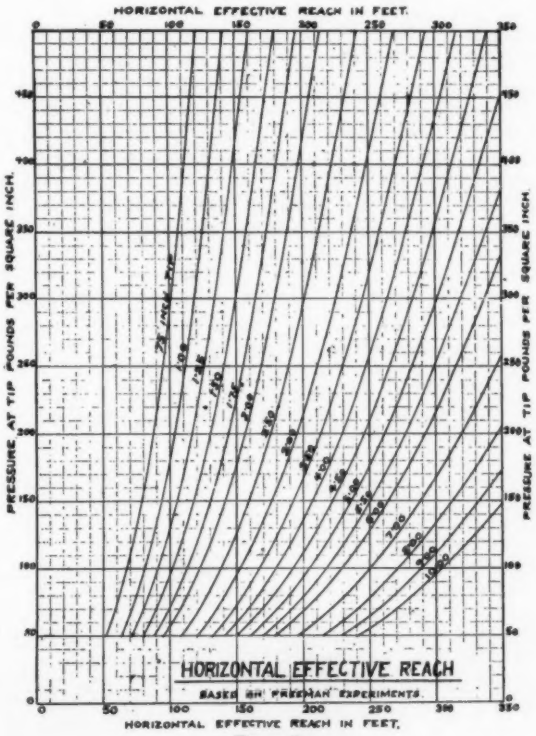
The reaches obtained are approximate only but are correct to within 2.0 to 3.0 percent of the theoretical reaches.

Elevation in degrees	Factor
90 degrees	1.000
85 "	.993
80 "	.970
75 "	.934
70 "	.883
65 "	.821
60 "	.750
55 "	.671
50 "	.587
45 "	.500

Resistance

Practically nothing is known about the resistance set up by a fire stream passing through the air, but such analytical work as has been done indicates that it increases at an accelerated rate as the pressure is raised while the tip is kept at the same size and at a high though probably lower rate than this if the pressure is kept constant while the tip is increased. This rapid increase in resistance accounts for the decelerating increases in horizontal effective reach attained by raising the pressure and increasing the tips.

It is probable that resistance can be broken down into three components, that due to friction, that caused by piling up of the air in front of the stream which eventually breaks it up into spray and mist and that caused by the displacement of the surrounding air necessary to permit passage of the water. This third component probably causes some form of wave disturbance in the air which is accentuated by the pulsations of the stream itself. Because of the numerous elements which enter into the problem such as the temperatures of both air and water, atmospheric pressure, density of the air and its relative humidity along with the viscosity and surface tension of both air and water, it is not likely that the proportions of these components will ever be known or the manner in which they vary with pressure and tip. Local air currents set up by the stream between it and the ground also play an important part as can be deduced from the fact that the greatest horizontal effective reach occurs at elevations of from 30 to 34 degrees for the tips and pressures now in common use, instead of at 45 degrees as would normally be expected. The length of the curved path of the stream itself remains approximately the same regardless of the elevation of the nozzle. If the nozzle were placed but a few feet above the ground and with zero elevation, then the stream would strike the ground a short distance from the tip. As the elevation is increased this distance is increased until all the effective length of the stream is clear of the ground. Nearness of the stream to the ground drags the air away from it creating a decrease in air pressure there and the air above it presses down and cuts off the reach. As the elevation increases the reach increases until the maximum is reached at from 30 to 34 degrees at which the horizontal effective reach is greatest. Beyond 34 degrees the horizontal effective reach decreases as the length of the curve's path remains the same or approximately so.


HORIZONTAL EFFECTIVE REACH IN FEET.
PRESSURE AT TIP POUNDS PER SQUARE INCH.
HORIZONTAL EFFECTIVE REACH
BASED ON FREEMAN EXPERIMENTS.
Figure 2.

Effect of the Wind

Very little experimental work has been done to determine the effect of the wind on fire streams but from such information as is available it can

be said that they are almost at its mercy. A faint tail breeze will increase horizontal reaches by about 10 per cent. A moderate tail breeze will lower the vertical reaches from 10 to 15 per cent. A head breeze will raise the vertical reaches and shorten the horizontal. A strong wind will cut off the stress sharply. If it increases in velocity it will destroy the stream at the tip by turning it into spray which it will drive to the rear of the nozzle. Similarly a strong tail wind will, while carrying the water forward, break it up into rain and spray. The wind also has a serious effect on the resistance, tail winds reducing it and head winds increasing it. In both cases the stream wastage will be increased.

As the water leaves the tip gravity gets in its work and it begins to drop. The stream further takes on a curved conical form increasing the surface area exposed to friction. The water shreds off in wisps of mist which with the drip forms a water curtain under the stream. When the coning is excessive, the nozzle is defective in the form of its interior or the inner surface is not smooth. The interior of nozzle barrels should be kept highly polished if clean streams are wanted. Excessive coning is further an indication that the pressure is too high and the discharge too much for the nozzle to handle efficiently. The result is a serious wastage of water which falls to the ground instead of hitting the fire. This wastage cannot be eliminated entirely but it can be reduced to a minimum by good nozzles and suitable pressures and discharges.

Reach Limits

These points raise the question, is there not a pressure limit for a tip beyond which the reaches for a stream will be decreased instead of being increased? The answer is yes. This is proven by the short reaches and excessive spraying of small tips at the higher pressures. Increase of pressure increases wastage and this will progressively destroy the stream as the pressure rises and there will be a pressure at which the stream will be almost nothing but wastage. It is not likely that this pressure limit will be reached with the pressures and tips now in common use except for the smaller tips. It can be stated that in general, increase of pressure will increase reach but the increase progressively decreases at a rapid rate as the pressure is increased because of the accelerated increase in resistance and coning as the pressure rises.

Remarks

From what has been stated here it is plain that our knowledge of fire streams is far from complete and that much work must be done before the ideal stream, the stream that delivers the maximum amount of water with the slightest resistance and wastage at the greatest reaches and with sufficient pressure to be effective for fire fighting purposes, can be realized. While much experimental work has been done, much more remains to be done. The difficulties of such experimentation are many and the opportunities for carrying it on, few. The whole field should be carefully investigated once and for all time and the points at difference settled.

It should be done as a national project and it can be best done at one of the large power dam projects in the west, Boulder Dam for instance, where there is enough water and head to cover all the ranges of pressures and tips in use or likely to be used. If additional pressure is required pumps can be cut in in series to give it. Analytical work should then be done to develop the theory of fire streams to its logical and practical conclusion.

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Strength of Melbourne Fire Brigade

The strength of the Metropolitan Fire Brigade of Melbourne, Australia, is forty-two stations; 331 permanent employees, including all ranks; eighty-three special service firemen; 175 partially paid firemen; four extension ladders and fire escapes; one combination ladder; two combination ladders and pumps; three turbine pumps; forty-seven hose carriages and pumps; twenty-one hose carriages and pumps, A. R. P. type; two hose carriages; two salvage vans; one gasoline supply tanker; one soda supply tanker; one chief officer's car; one deputy-chief officer's car; fourteen inspection cars; nine service vans; two trucks; one traveling workshop; one trailer pump; one hand trailer (hose); two hand hose reels; three pompier ladders; forty-seven hand pumps; forty-three spray pumps; thirty smoke helmets; 193,842 feet of hose.

The electrical equipment of the Brigade now consists of 1,371 street fire alarm call boxes. Private fire alarms number 516, to which 1,830 auxiliary alarms are connected. One hundred and forty watchman's clocks are installed, and 585 sprinkler installations are connected from public and other buildings. There are sixty-seven automatic fire alarm installations, and 153 telephone lines, sixty-five of which are acting as fire alarms. These alarms are connected to the various fire stations by 1,025 direct circuits.

New Salvage Van Recently Put Into Service at Melbourne

Firemen Can Be Deferred

Many Departments Report Success in Securing Draft Deferment for Skilled Men

IT is entirely up to local draft boards whether or not professional firemen are given deferment. If they can be convinced that men are indispensable, they can grant deferment. Most draft boards appreciate the importance of an efficient fire department in national defense picture; some do not.

It is hoped that the data presented below, representing the experiences of a typical group of cities in getting deferment for firemen, will prove of aid to other fire departments in maintaining their forces of skilled fire fighters intact.

New York, N. Y.
John J. McCarthy, Assistant Chief

The New York City Department has been successful in obtaining deferment in the majority of cases considered by the local boards. Six hundred and forty-two men eligible for 1-A classification were considered and five hundred fifty-five were deferred while eighty-seven were inducted. Most of these inductions were made prior to December 7, 1941.

Orders were issued directing all members of the department to report at this office upon receiving the Selective Service questionnaire. We then wrote to the local board explaining the necessity for providing protection for the home front and the outstanding work performed by the fire departments in Europe since the war began. We also explained the difficulty of obtaining replacements due to economic conditions and the fact that men who would be eligible for appointment were just the type that the armed forces were looking for. As you probably know, applicants for the position of fireman in New York City must be twenty-one to twenty-nine years of age and possess very high mental and physical qualifications.

Since December 7th, some of the Boards which had been inducting firemen have changed their attitude and are now cooperating with this department. However, there are still a few who feel that firemen are not necessary for the protection of the home front. In all cases where deferment is not granted, the firemen is directed to appeal his case requesting occupational deferment and we communicate with the board giving additional facts. Since March 1st, through the cooperation of Colonel Arthur V. McDermott, Director of Selective Service in New York City, in all cases where appeals were denied, the induction of firemen has been indefinitely postponed.

At the present time there are over six hundred vacancies in the uniformed force of this department. Mayor LaGuardia has stated that he is making provision for the appointment of four hundred firemen in the 1942-43 budget. This means that by the end of the fiscal year there will be over two hundred vacancies without taking into consideration the loss of men through retirements, deaths, resignations, etc. The loss of trained firemen is having a detrimental effect upon the defense plans of this department.

Mobile, Ala.
L. L. Petrey, Chief

We were able to secure a temporary deferment for a few months. Three men have been called, and one deferred for a period of three months and then finally called. We appealed through the local draft board.

Salt Lake City, Utah
Lavere M. Hanson, Chief

We have had about ten men called up, of which one was taken before we understood that we had to obtain his deferment before he was called for service. Since that experience, however, we have managed in every instance to procure deferment into industrial class 2-B on the basis that ours has been set up as a vital defense area; that the man (or men) in question is highly trained as a result of much time, effort and expense; that they are valuable and integral cogs in our department, which in turn is the nucleus of civilian defense and the backbone of national home protection. In one instance it became necessary to appeal a man's case. On this occasion, deferment was procured by a personal appeal by the fire chief on the above grounds.

Doubtless, the relative importance of an area to the defense and war production effort has much to do with the success or failure to obtain deferments, but in any city it should be pointed out that the fire department is carrying the preponderance of the load of civilian defense whether the area be vital or not.

El Paso, Tex.
W. E. Jackson, Chief

We have asked deferment on but one man to date and have received it. I wrote a letter to the local draft board stating that deferment was requested because the man was an indispensable one.

Dayton, Ohio
Joseph A. Kirby, Chief

To date, nine men have been deferred and three voluntarily have enlisted. We filed DSS Form 42 A, which grants six months deferment with the privilege of renewal. All the deferments we have asked for have been granted so far.

Ogden, Utah
Elmer A. Anderson, Chief

We have secured deferments for the two men called in the draft. We filled in form to reclassify those in 1-A to 2-A.

South Bend, Ind.
Charles De Vleeschower, Chief

Four men were called but were granted deferments. For one of the men I had to appear before the local board before a deferment was granted.

The copy of the letter which was sent to the local draft boards to secure the above deferments is given below:

"On August 5, 1941 I had requested your Honorable Board that John Doe, a member of this department, be given deferment, which was granted at that time. At this time I am again requesting your Honorable Board to extend this deferment.

"The sheer wastefulness of drafting men trained for fire fighting service is apparent when one considers what happens to them when they do enter the service. The first six months of the trainee's time in camp is devoted to the very same kind of training that our recruits get. Training in discipline is something that our firemen are getting all the time. The situation is further aggravated by the fact that when one of these young men is drafted, his successor in the department will also be of draft age, since the men in the civil service eligible list are well under the maximum age.

"The men in our department who are called to service in the army are not less faithful to their country than those who go to the training camps, but they must be replaced, and the new men trained in the present methods of fire fighting."

Alameda, Calif.
Thomas M. Lane, Chief

We have applied for deferment for one man and have received it. We filled out regular deferment sheet and filed it with the board, explaining why he was necessary to the department because of his experience.

Riverside, Calif.
W. J. Taylor, Chief

We haven't lost any men to date. Four have been deferred. We filled out form 42 and filed it with the local draft board.

Recently the chairman of the local draft board told me that he was doubtful if some of my men could be permanently deferred, and that they might be re-classified at any time.

Wauwatosa, Wis.
Fred M. Hartel, Chief

Five men have been called for military

service but four of them have been deferred on the plea that the fire department was undermanned and that it would be extremely difficult to replace them. I also brought out the fact that the fire department is a vital part of the National Defence program.

The fifth man was a member of the fire department for only thirty days at the time he was called, so the draft board ruled that he be inducted and the Appeal Board upheld their decision.

Louisville, Ky.
B. C. Van Andale, Secretary-Examiner
Louisville Civil Service Board

No man has been drafted from the Police or Fire Departments as of this date. Deferment was asked for seventy-nine firemen. Of this number, two were denied. These cases were appealed and the deferments granted by the Appeal Board.

We wait until the man is classified by his local board. If he is classified in 1-A, we request deferment on form 42. If deferment is still not granted, we appeal.

Personal appearance of official requesting deferment before the local board is helpful. We will not appoint as a rookie fireman any man presently classified in 1 or 2.

St. Louis, Mo.
Joseph Morgan, Chief

Three men have been called into service, but in a few cases firemen have been deferred, on the grounds that we need trained men for fire fighting in order to protect the personnel and property of war industries.

Muskegon, Mich.
Chris Smith, Chief

Two men were deferred. A letter was written to the local draft board explaining the value and need of said men and that it would be hard to find men at the present time to replace them. Our request was granted.

Cicero, Ill.
George Knol, Chief

Four men have been called and deferred. We appealed to the local board on the grounds that the department would be undermanned and the City did not intend to put on any additional men.

Mason City, Ia.
Daniel H. Shire, Chief

Twenty-nine of the thirty-five men in our department were subject to the draft. All were given deferred classifications.

I wrote both draft boards calling attention to the fact that the fire department was the heart of civilian defense and asked them to defer the firemen. Both boards granted it.

Terre Haute, Ind.
Ralph C. Dinkel, Chief

Only one man has been called in the draft and he has been deferred. I appeared before the clerk of the local draft board and signed an affidavit that it would require at least two years to train a man to fill his position in the department.

If they had refused to defer him, I intended to appeal. Appeal was not necessary, as they deferred the man for six months with the privilege of further defermeat. He has enlisted since then.

Taunton, Mass.
Edward F. Gorey, Chief

Three of our men have been called, but have been deferred. I wrote to the local draft boards requesting deferment and was invited to appear before them to state my reasons for the request. Deferment was granted in each case.

Watertown, Mass.
John W. O'Hearn, Chief

We have been able to secure deferment for the two firemen who were called in the draft. I went before the draft board and recommended that they be deferred because this was a "fire war" and that experienced firemen were of great value. I also stated that it was easier to train a soldier than a firemen. It was not difficult to convince the draft board once they were given the facts.

Elmira, N. Y.
Daniel P. Collins, Chief

One of our men was drafted, but we were able to secure deferment for him. I appeared before the draft board and requested deferment because the man was indispensable and there was no one to replace him at the time.

Wilmington, Del.
William J. Lutz, Chief

Seven men were called, but six of them were deferred. Form 42 was filled out in each case, stating that the men were invaluable to defense and would be next to impossible to replace, due to the high wages being paid in industry.

One appeal was submitted and refused.

Long Beach, Calif.
A. C. DuRee, Chief

Five men were called and three deferred. We filled in selective service form 42-A.

We did not appeal in the case of the two who did not secure deferment, as they were not deemed indispensable to the department.

Wichita, Kan.
P. M. Wendel, Chief

We were able to secure deferment for all but one man by appearing before the local draft board.

Battle Creek, Mich.
C. A. Crosier, Chief

We have had only one man called and he was deferred on the basis of his years of experience in the fire department.

Pittsfield, Mass.
Thomas F. Burke, Chief

One of our men was called in the first draft and was deferred. I wrote to the local draft board stating the fact that we are short of skilled firemen and that all the men we have are needed to protect the city and the many manufacturing plants here that are working on defense orders.

Kearney, N. J.
Walter Scott, Chief

Three of our men were deferred. I personally went before the local draft board, following which a letter was sent explaining that we are located in a very busy defense area and that the firemen play an important part in the protection of the industries within our borders. This method proved successful.

Gary, Ind.
Robert McGuire, Chief

Six men have been called and all deferred. I filed D.S.S. Form 42 to accomplish this. However, I have received word from the local draft boards that no fireman hereafter would be deferred. Fireman reclassified into 1-A have left the fire department and have joined the armed forces. They have been replaced by men with 3-A classifications.

Orange, N. J.
George J. Gmeiner, Chief

We have been able to secure deferment for all our firemen called in the draft as the chairman of the draft board believes firemen are as essential as military men now that we are at war.

I have discussed all written material relative to the need of firemen at home

(Continued on following page)

Incendiary Bombs Made by Fire Brigade

The Metropolitan Fire Brigade of Melbourne, Australia, have made incendiary bombs in their workshops for the purpose of training citizens in the proper way of extinguishing them. Over

Testing Incendiary Bombs Made in Workshops

3,000 people have been trained in the State of Victoria alone, and requests for bombs have been received from all states in the Commonwealth, as well as New Zealand.

Demonstrations on how to deal with incendiary bombs have been given weekly at the greatest patronized sports gatherings and have been received with appreciative interest.

with our local board and from time to time any new material on the subject is turned over to the chairman.

East Orange, N. J.
Charles A. McGinley, Chief

Nine men have been called and six deferred. We filed the regular exemption form, stating that trained firemen were important for the home defense of this city.

Port Huron, Mich.
George Hisscock, Chief

Five men have been called and all deferred. A written request for deferment due to the job of fire fighting was made in each case.

Mount Vernon, N. Y.
John Gibson, Chief

We have been able to secure deferment for the twelve firemen called in the draft. This was done through the cooperation of the Mayor and the city administration. The draft boards themselves felt that trained firemen are needed at home.

Greensboro, N. C.
Frank D. Shaw, Chief

Six men have been called and deferred. I met with the local boards and convinced them that it took longer to train a firemen than it did a soldier, and that we feel a trained fireman is serving his country as much as a trained soldier.

The matter was left up to the local board for them to take whatever step they felt necessary. They have met our request in every instance.

Reading, Pa.
Harry J. Brown, Chief

One man has been called, but has been deferred. I appeared before the draft board and appealed on the grounds that it took years of experience to make a good fireman and that it was not the time to experiment with untrained men. I also brought out the fact that fire has played an important part in this war as can be seen by the London raids. We need trained men to maintain our expensive apparatus.

Winston-Salem, N. C.
M. G. Brown, Chief

I have thirty-six men who are in the first draft; only one of whom have been called so far. I got him deferred and re-classified in class 2-B. I had to fill out affidavit claim DSS Form 42-A.

Middletown, Ohio
E. F. Reed, Chief

One of our men had been called and had served nine months. He was released from the service when the law went through deferring those of twenty-eight years and over. The man called asked the local board for deferment, with letters of approval from the City Manager and myself. The request was referred to the Board of Appeals which granted the request and re-classified the applicant.

San Jose, Calif.
Charles Plummer, Chief

We have been able to secure deferments for three out of the four firemen called. We applied to the local draft board in each case.

Bakersfield, Calif.
Phil C. Pifer, Chief

Two of our men have been called. One of them has been deferred and the other case is pending. Three of our men have enlisted voluntarily. We addressed letter to the local board explaining the need for trained firemen.

Brockton, Mass.
Frank F. Dickinson, Chief

We have been able to secure temporary deferments for ten of our firemen. Due to the Strand Theatre disaster deaths, and because of the many injuries (men are still out due to this disaster) I requested deferment for the newer members and the older members who were called. I also mentioned that older members were well trained men of this force, citing the fact that it would take a long time to train new men. All members both new and old have received six months deferments (twice to date).

No appeal has been made and none will be made when these men are taken.

Columbia, S. C.
A. McC. Marsh, Chief

Four men have been called in the draft, two of which were temporarily deferred. Regular deferment forms were filled out. Information such as date of birth, whether married or not, years of service as a fireman and other information was furnished.

Little Rock, Ark.
Joe Carmichael, Chief

Three firemen have been deferred for six months. We applied to the local board for occupational deferment blank to file with the appeal board.

Grand Rapids, Mich.
Fred P. Higgins, Chief

Three men with past service have reenlisted. One man has been deferred. We filed the usual form to secure his deferment.

Canton, Ohio
George E. Jacob, Chief

Two of our firemen have been temporarily deferred. To secure this, we filled out the regular form.

Burlington, Vt.
Newton Lavery, Chief

One of our men has received a six-months' deferment. I sent a letter to the draft board. In this letter I stressed the fact that any fireman with two years of fire fighting should not be inducted into the service. At the time I wrote the letter we were not at war.

I will say at this time, due to the fact that we are at war, I would want to consider carefully all things before attempting to have anyone deferred.

Indianapolis, Ind.
Harry H. Fulmer, Chief

We have been able to secure deferment for firemen called in the draft, namely, where there are dependents and in some cases for six-month periods. When their time has expired, we have them again re-classified, either deferred or ordered to report for service. Fifteen have been called, and about the same number deferred.

We file the regular form for deferment or a letter from this office explaining in detail how important a well trained organization is in an emergency.

Lexington, Ky.
C. J. Henry, Chief

One of our firemen has received a temporary deferment. He made application for deferment and I went before the draft board at his request. Firemen have been deferred temporarily, but I have been unable to secure any definite decision from the draft board on their status.

I have since spoken to the chairman of the local draft board concerning the inadvisability of taking skilled firemen, pointing out that it takes at least three years to develop a skilled fireman. He agreed with me, but the board has made no definite decision. No men have as yet been drafted.

New Bedford, Mass.
Edward F. Dahill, Chief

Six of our men have been called. Three of these have been deferred for six months, one was denied, and the decision on two is pending. We filled out DSS Form 42 A.

Tuscaloosa, Ala.
E. L. Mathews, Chief

Three of our men have been called in the draft, only one of which has been deferred.

I met with our local board and asked for deferment. They deferred the first one for six months and called the other two six months after the first one. I tried to convince them that trained firemen were as hard to train as soldiers and for that reason should be deferred.

I don't believe any method will do any good until orders are issued from Washington.

Tacoma, Wash.
E. N. Whitaker, Chief

We have only been able to secure a temporary deferment for sixty days. We try to secure deferment on the grounds that the man has been in the fire department for some time, that he holds a certain rank in the department, that he is being used to train auxiliary firemen and that he cannot be replaced.

We contacted the draft officer and he told us that deferment was entirely up to the local draft board.

Burlington, Ia.
R. P. Collatt, Chief

One of our firemen was deferred for six months, at the end of which he was re-classified and put into 1-A. Two others received no deferment.

I conferred with the selective service system and Des Moines County Draft Board No. 1 and the State Draft Board. The local county draft board deferred him and later re-classified him. The other two men were members of the Naval Reserve. I at first conferred with the Company Commander, then the Admiral in charge of all Naval Reserve at the Great Lakes Training School and finally wrote to the Navy Department at Washington, from which I received no answer.

(To be continued)

Practical Training for Auxiliary Firemen

Third of a Series of Articles Devoted to This Important Phase of National Defense

By FRED SHEPPERD
Editor, FIRE ENGINEERING

IN this, the third of the series of articles on the training of auxiliary firemen, various types and sizes of incendiary bombs are discussed, together with methods of extinguishing fires incidental to these bombs.

The following installment will discuss the fighting of incipient fires resulting from incendiary bomb attacks.

Questions and Answers

Q. Is it safe to move magnesium incendiary bombs while they are still burning?

A. Yes, if they are not of the explosive type.

Q. What appliances or equipment are commonly used in connection with the removal of burning bombs?

A. Long handled shovel (scoop), tongs, sand pails and sand, snuffer, heavy gloves, blanket (wetted), and goggles.

Q. What procedure is followed in removing burning bombs?

A. First, make sure that the bomb is not of the explosive type by waiting behind protection for about two minutes after arrival of the bomb. After this period has elapsed, the bomb is covered with sand to check glare and slow down rate of burning, and then shovelled up and placed in metal pail (bucket) partly filled with sand. Sand from floor may be replaced in bucket to cover bomb. The pail containing bomb is then carried to place of bomb disposal.

Q. What is best method of carrying the pail containing the burning bomb?

A. With a shovel handle or pole through bail of pail to enable the pail to be carried a little away from bearer.

Q. What is the purpose of this precaution?

A. To prevent bearer from being burned by particles of molten metal being thrown off by sputtering bomb.

Q. Are tongs widely used for removal of burning bombs?

A. No.

Q. Why?

A. The shower of sparks from the burning magnesium bomb would make it dangerous and difficult to carry a bomb at such close quarters if proper protective clothing were not being employed.

Q. Can a burning incendiary bomb be dropped from a window to the ground below without causing a fire hazard?

A. Yes, if it lands on earth, on pavement or on concrete or brick walk.

Q. Any particular objection to this method of disposal?

A. Yes, the glare from the burning bomb may serve as a target to enemy bombers.

Q. For what purpose is a wetted blanket used in connection with operations on burning incendiary bombs?

A. Protection of the operator in the event that the bomb explodes; also to protect the operator when he is in close proximity of the burning bomb.

Q. What other method than the use of a wet blanket is employed to protect the operator when directing a stream or spray at a burning incendiary bomb?

A. Crouching behind a chair or table tipped to its side, or behind a box, large board or other improvised shield.

Q. Is the snuffer effective in extinguishing a burning magnesium bomb?

A. No. It requires a snuffer that is practically airtight to extinguish a burning magnesium bomb.

Other Types of Incendiary Bombs

Q. What type of incendiary bombs, other than the one kilogram magnesium bomb, have been used by the enemy?

A. Magnesium bombs of two, 5½, ten and twenty-five kilograms weight (4½, twelve, twenty-two and 50⅛ pounds); thermit bombs, white phosphorous bombs, multiple effect bombs, oil bombs and incendiary "calling cards" (also called "incendiary leaves").

Q. Are the larger magnesium

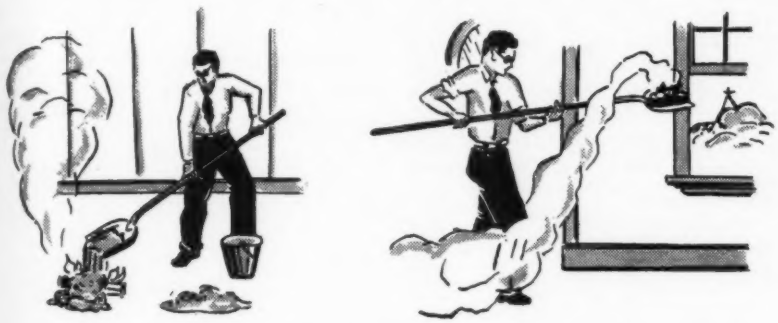
Procedure in Handling Burning Bomb with Pail of Sand and Long-Handled Shovel: Left to Right—Shoveling Up the Bomb, After Covering with Sand; Putting Bomb into Pail; Replacing Sand in Pail (on Top of Bomb); Carrying Pail and Bomb to Point of Safety.

bombs similar to the one kilogram bomb?

A. Yes, with one exception: practically all the larger ones contain an explosive, while only about one in fifty of the one-kilogram bombs are so equipped.

Q. Of what size, or weight, are thermit incendiary bombs?

A. Usually made in two sizes: fifteen kilograms (thirty-three pounds) and fifty kilograms (132 pounds).



Disposal of Burning Bomb Out of Window: Left to Right—Putting Sand on Bomb; Carrying Bomb, Under Sand, on Long Handled Shovel to Window.

Q. Of what does a thermit bomb consist?

A. A container filled with thermit, a mixture of aluminum and iron oxide in powdered form, and provided with ignition mechanisms. Some thermit bombs are also provided with an explosive charge.

Q. Is the thermit bomb widely used?

A. No.

Q. Why not?

A. It is heavier than a magnesium bomb, burns out in but one to two minutes and upon burning generates but one-eighth the amount of heat produced by burning a like weight of magnesium.

Q. Of what does the phosphorus bomb consist?

A. A container filled with white phosphorus and provided with an explosive charge.

Q. How large are they?

A. Almost any size up to twenty kilograms in weight.

Q. Are they effective incendiary agents?

A. Only for highly inflammable materials such as grain fields, forests, dry leaves, thatched roofs, etc. Because of its low burning temperature, phosphorus is not capable of setting fire to materials which are not readily ignited, such as floors, roofs, etc.

Q. Are they used for any other purpose than noted above?

A. Yes, as an anti-personnel agency, to demoralize troops, fire fighters, and other personnel.

Q. How does a white phosphorus bomb function?

A. When the bomb, upon dropping, strikes the ground or other firm object the explosive charge is ignited by impact and the resulting explosion scatters burning phosphorus over a large area.

Q. How does such a bomb demoralize personnel within the range of the scattered phosphorus?

4. The burning phosphorus, coming in contact with exposed parts of the body, causes painful burns. Landing on clothing, the clothing may become ignited. As phosphorus, upon burning, becomes liquid, it cannot be brushed from the clothing, nor from the skin. Furthermore, it ignites spontaneously when dry and in contact with the air, so that, even if extinguished by water, the fire will recur upon the phosphorus drying.

Q. What is a "multiple effect" bomb?

A. A bomb which contains a number of incendiary units of magnesium and phosphorus which are expelled from the bomb and scattered over a relatively wide area when the bomb explodes.

Q. Where are they likely to be used?

A. Against certain kinds of targets, such as large factory buildings, storage of military supplies and other military establishments.

Q. What is an oil bomb?

A. A bomb, five to six feet in length and eighteen inches in diameter, and containing from forty-six to fifty gallons of heavy oil. It weighs from 350 to 400 pounds. It may explode either when nearing its target or by coming in contact with it, and spread its contents over a radius of about twenty-five feet. Smaller bombs, containing about sixteen gallons of oil are also used by the enemy.

Q. Are these bombs effective?

A. Yes, particularly so in connection with bombed buildings, when the debris is saturated by burning oil.

Q. Do oil bombs ever contain anything but heavy oil?

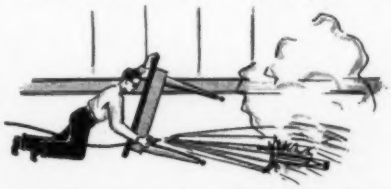
A. Yes. Sometimes they are filled with solidified gasoline, as well as other inflammable substances.

Q. What are incendiary "calling cards"?

A. Small, square (four by four inches) "sandwiches" made up of two sheets of celluloid with white phosphorus between. They are kept moistened with water until dropped on their targets. White phosphorus, when it becomes dry, ignites spontaneously, and in the "calling card," it ignites the celluloid. These calling cards, when moist, are dropped over forests, grain fields or other inflammable targets, and when the phosphorus dries out, fires are started.

Q. What is a "Molotov Breadbasket"?

A. A hollow shell, about four feet and eighteen inches in diameter, in which are placed from 36 to 50 one-kilogram magnesium incendiary bombs. A timing device causes detonation of an explosive charge as the "breadbasket" nears its target, and the bombs are blown in all directions. By its use a number of fires can be started within a small area.



Operating on an Incendiary Bomb from Behind Improvised Shield.

Q. What procedure is followed in extinguishing fire involving the larger sizes of magnesium bombs?

A. Precisely the same procedure as employed with the one kilogram bomb, except that the small first aid fire fighting appliances used with the one kilogram bomb must be supplanted by equipment giving greater water discharge. Furthermore, large incendiary bombs will likely require the

services of skilled fire fighters.

Q. Can burning thermit bombs be extinguished by any practical means?

A. No. Thermit supplies itself with all the oxygen needed for combustion, and it will continue to burn even under water.

Q. What, then, is the procedure in operating on fires involving thermit bombs?

A. Keep the bomb and area immediately surrounding it sprayed with water. The water will cool the molten iron produced by the burning of the bomb and prevent it from spreading the fire. At the same time the spray will prevent extension of any fire which may be caused by the flare from the bomb. The bomb will burn itself out in from one to two minutes. Should it burn through a floor, it must be followed with water spray or stream.

Q. Is it difficult to extinguish the fire involving white phosphorus?

A. No, such fire is easily extinguished.

Q. How is this accomplished?

A. By application of water or sand, the former being a far more effective agent for this purpose. After extinguishing the fire, the phosphorus must be kept wetted, otherwise it will reignite spontaneously. A solution of copper sulfate in water, on the other hand, not only extinguishes the phosphorus fire quickly but it usually prevents spontaneous reignition of the phosphorus. Note: Avoid personal contact with white phosphorus, as it causes painful burns.

Q. How are fires involving multiple effect bombs extinguished?

A. The burning magnesium pieces are handled in precisely the same manner as one-kilogram magnesium bombs; the phosphorus pieces, as described above. Removal of the unburned phosphorus pieces, after fire has been extinguished, and the pieces are still wet, to a safe place is advisable.

Q. What is the recommended procedure for extinguishing burning oil from oil bombs?

A. The vapor nozzle (fog nozzle) is highly effective for this purpose as is also sand. Foam cannot be used effectively on fires involving oil soaked debris, but is effective if oil surface can be covered with it. Carbon dioxide and dry powder extinguishers can be used if burning area is not great.

Q. How should burning "calling cards" be handled?

A. Extinguish fire with water and then collect and burn "calling cards" in a safe place or keep under water. Treatment with copper sulfate solution will prevent their reignition.

Q. Are sodium and sodium-potassium alloys good incendiary agents?

A. No.

Q. Why?

A. They do not create sufficiently high temperatures, when burning, to ignite many combustible materials.

Q. Do they ignite spontaneously?

A. Yes, in the presence of moisture, and therefore must be kept absolutely dry or be stored submerged in oil.

Q. How are fires involving these materials extinguished?

A. By covering with dry sand.

Q. Should water streams or spray be used upon them?

A. No.

Q. Why?

A. Application of water would cause violent reaction and would increase the intensity of the fire greatly.

Some Miscellaneous Questions and Answers on Incendiary Bombs

Q. How can a surface be protected to prevent penetration by a one kilogram bomb?

A. By covering it with a steel plate ¼-inch thick, a layer of sandbags closely laid, or by a 5-inch layer of reinforced concrete.

Q. Assume a 1 kilogram bomb lands in an attic, what protection would be required to prevent the bomb from burning through to the floor below?

A. A layer of sand or earth 2 inches thick, a layer of ashes 3 inches thick or 1-inch thickness of plaster or asbestos board would probably prove effective.

Q. Does a 1 kilogram bomb make a noise when falling?

A. Yes, a wailing, whistling sound.

Q. What kind of smoke is produced by the oil bomb?

A. A dense, black, pungent smoke that makes close fire fighting operations difficult.

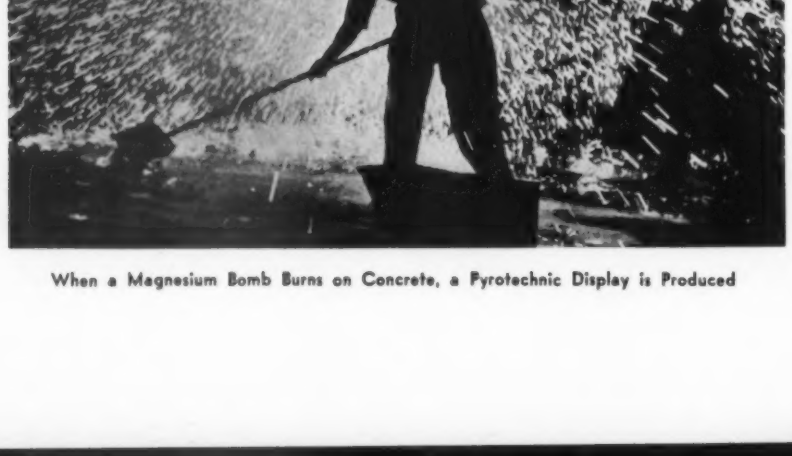
Q. Does the phosphorus bomb produce smoke when burning?

A. Yes, a dense, white, acrid smoke.

Q. How is fire spread by burning magnesium of an incendiary bomb?

A. By direct contact of burning magnesium with combustible materials, by particles of molten magnesium scattered by the burning bomb, by the flow of molten magnesium through cracks or other openings, or by radiated heat from the burning bomb.

Ignition of materials by direct contact with the burning bomb represents the major manner of fire spread.



When a Magnesium Bomb Burns on Concrete, a Pyrotechnic Display is Produced

Much Fire Apparatus Needed for Defense Preparation

Cities Throughout Country Report Urgent Need for More Apparatus

IN the April issue of FIRE ENGINEERING was published a tabulation of needs of fire departments in cities of 10,000 to 25,000 population and over, located throughout the country. In the tabulation which follows are given data for cities of the 5,000 to 10,000 population group.

The same widespread need for new fire apparatus is indicated in this group as was reported by the larger cities; and the same difficulty in securing it, indicated.

This discussion will be continued.

(A) Emergency apparatus and equipment purchased in 1940. (B) Additional apparatus and equipment needed. (C) Apparatus and equipment to be purchased during current year.

5,000 to 10,000 population.

Juneau, Alaska
(A) 1 750-gal. pumper; 1,000 ft. hose; 2 1½-in. fog nozzles
(B) Addl. 1½-in. hose
(C) New hose, 2,000 ft. per year

Homewood, Ala.
(A) None
(B) 1 750-gal. pumper; 1 service or ladder truck; 1 65-ft. aerial.
(C) None

Miami, Ariz.
(A) 500 ft. 2½-in. hose; 300 ft. 1½-in. hose; 6 helmets; 2 5-gal. pump cans; crow bars; resuscitator; hydrant wrenches; expanders; rings and gaskets; first aid equip.; portable gas engine pump; new register and reel on alarm system
(B) Triple comb. pump fully equipped; 23 gas masks; 19 helmets; 4 fog nozzles; 2 oxygen masks; 2 searchlights; 4 CO_2 extinguishers; replace set of fire alarm batteries
(C) 2 gas masks; 1 fog nozzle; set of fire alarm batteries.

Nogales, Ariz.
(A) None
(B) None
(C) 250 ft. 2½-in. hose delivered; 1800 ft. 2½-in. hose and 350 ft. 1½-in. hose

Russellville, Ark.
(A) None
(B) Hose; gas masks
(C) Hose

Monterey Park, Calif.
(A) None
(B) 1 1,000-gal. quad pump and ladder comb.; 1 hose wagon; 2 750-gal. trip. comb. pumpers
(C) None

Piedmont, Calif.
(A) 1,000 ft. 2½-in hose; tools such as shovels, brooms, etc.
(B) Replace city service truck; replace 200-gal. booster comb.; replace 350-gal. pumper; 1 new city service truck; 1 750-gal. pumper.
(C) None

San Fernando, Calif.
(A) 1,600 ft. 2½-in. hose
(B) 1 1,000-gal. pumper fully equipped; 4 auxiliary trailer pumpers fully equipped
(C) 1 1,000-gal. pumper

San Luis Obispo, Calif.
(A) 750-gal. triple comb. pumper; 1 1939 750-gal. triple comb. pumper
(B) 2,000 ft. 2½-in. hose; fog nozzles; knapsack pumps
(C) None

Santa Paula, Calif.
(A) 1 hose truck; 6 pickup trucks with 500 ft. 2½-in. hose, 2 spray nozzles and minor equip.; 200 ft. 1½-in. hose; 1 16-ft. ladder; 2 fire axes; 1 35-ft. aluminum ladder; 1 light plant
(B) 2 pumpers; 2,000 ft. 2½-in. hose; 1 city service truck
(C) 1 pumper

South San Francisco, Calif.
(A) None
(B) 1 aerial ladder truck; 9 aux. pumping units; 2 rescue units
(C) Unknown

Watsonville, Calif.
(A) None
(B) 1 1,000-gal. pumper; 1 300-gal. water tank with 350-gal. pump
(C) 1 1,000-gal. pumper

Woodland, Calif.
(A) Hose and small fire fighting tools
(B) 1 pumping unit; 1 squad truck carrying 350 gallons of water
(C) Probably the squad car

Durango, Colo.
(A) None
(B) 2 600-gal. pumpers with 200-gal. booster tanks; 3,000 ft. 2½-in. d.j. hose; 1,000 ft. 1½-in. hose; 25 gas masks; 20 knapsack pumps; 2 1½-in. fog nozzles; 2 2½-in. fog nozzles; 2 sirens; 2 foam generators and supply of foam; 15 fire alarm boxes; 2 hose clamps; 24 spanners; 25 prs. rubber boots; 25 shoulder and ladder straps; 12 motorcycles with side car; 25 pick-head axes
(C) None

Englewood, Colo.
(A) 1 500-gal. triple comb. pumper
(B) 1 750-gal. triple comb.; 1 quad with 750-gal. pumper
(C) None

Walsenburg, Colo.
(A) 400 ft. 2½-in. hose on order
(B) Rural truck complete; CO_2 extinguishers suction fan; accessories
(C) Unknown

Darien, Conn.
(A) None
(B) Ladder truck
(C) Ladder truck; new chassis

Greenwich, Conn.
(A) 1 65-ft. aerial equipped with booster on order; 1 500-gal. pumper ordered but priority not yet received. 5400 ft. 2½-in. hose
(B) None
(C) None

Hamden, Conn.
(A) Hook and ladder; 600-gal. pumper; 2 "blitz" buggies; 1500 ft. 2½-in. hose; 900 ft. 1½-in. hose
(B) 2 "blitz" buggies; 3 air raid sirens
(C) "Blitz" buggies and sirens

Stafford Springs, Conn.
(A) Gas masks; fog nozzles
(B) 2 aux. pumpers
(C) Not reported

Watertown, Conn.
(A) None
(B) 6 mobile pumping units; 5,000 ft. hose; 25 prs. boots; coats and helmets; 12 knapsack pumps; 1 portable lighting unit
(C) None

Westport, Conn.
(A) 1 500-gal. pumper with booster tank
(B) None
(C) None

Windsor, Conn.
(A) 1100 ft. 2½-in. hose; 400 ft. 1½-in. hose; 2 1½-in. nozzles; hose line equip.
(B) 1 750-gal. pumper; 1 city service ladder truck; 7 500-gal. trailer pumps; 5,000 ft. 2½-in. d.j. hose; 1500 ft. 1½-in. hose
(C) Perhaps 3 trailer pumps and 3,000 ft. 2½-in. hose and 1,000 ft. 1½-in. hose with nozzles and wyes

Winter Haven, Fla.
(A) Amplifying system with independent power unit for sounding various alarms
(B) Inhalator; cutting torch; bar cutter; all-service masks; rope; 2½-in. and 1½-in. hose; jackets; fog nozzles; blue vitral; 1 small truck with pump and large water tank
(C) Not known

College Park, Ga.
(A) Fire hose and supplies
(B) None
(C) None

Fitzgerald, Ga.
(A) 500 ft. 2½-in. hose; 2 knapsack pumps; 3 gas masks
(B) 1 500 gal. comb. pumper
(C) 500 ft. of 2½-in. hose purchased so far this year

Newnan, Ga.
(A) 1 new fireman
(B) 1 750-gal. pumper as a replacement. 3 new firemen; knapsack pumps; small appliances
(C) Asking for 4 fire alarm boxes; 2 gas masks; 1 respirator; 2 knapsack pumps; 2½-in., 1½-in and 1-in. fog nozzles

Caldwell, Ida.
(A) None
(B) 1 750-gal quad pumper; flood lights; hose; portable pump; fog nozzles; turnout clothes; masks
(C) 1 small fog nozzle; 200 ft. hose; some clothes

Boardstown, Ill.
(A) Gas masks; helmets
(B) 1 500-gal. pumper
(C) None

Belvidere, Ill.
(A) 600 ft. hose
(B) None
(C) None

DeKalb, Ill.
(A) Hose; hand lines; safety belts; hook and ladder truck converted into service wagon
(B) None
(C) None

Downers Grove, Ill.
(A) None
(B) 1 aerial ladder truck; 1 500-gal. pumper; 4 trailer units
1 500-gal. pumper

East Peoria, Ill.
(A) 500-gal. pumper with 250-gal. tank; 500 ft. 2½-in. hose; inhalator; 2 masks; 2 fresh air masks
(B) 500 ft. hose
(C) Not known

Edwardsville, Ill.
(A) 1,000ft. 2½-in. hose
(B) 1 ambulance fully equipped
(C) Not reported

Gillespie, Ill.
(A) 600 ft. hose; 1 siamese reducer; 1 nozzle coats; helmets; rope
(B) Not reported
(C) Some equip. has been ordered but has not been delivered as yet

Herrin, Ill
(A) 1,000 ft. hose on order
(B) New truck; 1,000 ft. hose
(C) Anticipating the buying of a new truck if funds are available.

Johnston City, Ill.
(A) None
(B) None
(C) None

Marion, Ill.
(A) 500-gal. pumper with 350-gal. booster tank
(B) Hook and ladder truck; chemical truck
(C) None

Marseilles, Ill.
(A) 500 ft. d.j. 1st line hose; 1 20-unit first aid kit; 6 prs. boots; 6 heavy coats
(B) Refills for extinguishers; gaskets and other miscellaneous equipment
(C) Not reported

Morris, Ill.
(A) 500 ft. hose and spray nozzle
(B) None
(C) None

Murphysboro, Ill.
(A) 500 gal. comb. pumper on order
(B) None
(C) None

North Chicago, Ill.
(A) None
(B) 1 500-gal. pumper; 1 service truck with 500-gal. pump; 3 trailer pumps
(C) 1 trailer pump

River Forest, Ill.
(A) None
(B) 1,500-watt lighting system; emergency squad;

1,000 ft. 2½-in. hose; 500 ft. 1½-in. hose; 500 ft. 1-in. booster hose
(C) Lighting system and hose

Riverside, Ill.
(A) 400 ft. 2½-in. hose, helmets, raincoats, boots; bunker suits
(B) Addl. hose.
(C) Hose

Savanna, Ill.
(A) Water vapor nozzle adapted for both 1½-in. and 2½-in. hose
(B) Comb. ladder and pumping unit
(C) None

Spring Valley, Ill.
(A) 500 ft. 2½-in. hose on order
(B) Service truck; 1,000-gal. pumper fully equip.
(C) None

Woodstock, Ill.
(A) None
(B) None
(C) None

Zion, Ill.
(A) None
(B) 1 500-gal. pumper; 1,500 ft. 2½-in. hose; 200 ft. 1½-in. hose with siamese; 10 bunker outfits; 5 pump tanks
(C) Not known

Bluffton, Ind.
(A) 1 750-gal. pumper on order; 2½-in. hose; all-purpose gas masks; extra ladders
(B) None
(C) None

Franklin, Ind.
(A) None
(B) Hose; ladders; more men
(C) Not known

Hartford City, Ind.
(A) 6 all-service gas masks; 18 raincoats; 18 hard helmets; 1 2-patient inhalator; 1 fog nozzle; 1 cellar nozzle; 750-ft. hose
(B) 1 500-gal. pumper; 2 lighting units; 2 portable 250-gal pumps; 150 stirrup pumps; 200 ft. of ladders; 6 hand electric lanterns
(C) None

Hobart, Ind.
(A) 1 750-gal.. pumper fully equipped
(B) Not reported
(C) Not reported

Madison, Ind.
(A) 200 ft. 1½-in. hose siamese; stirrup pump
(B) CO_2 extinguishers; stirrup pumps; pumper; 2 hose wagons; aerial truck
(C) Hose; stirrup pumps; coats, hats and boots for aux. firemen

Tipton, Ind.
(A) None
(B) 1 750-gal. pumper
(C) 1 750-gal. pumper

Valparaiso, Ind.
(A) 1 500-gal. pumper; 300 ft. 2½-in. hose
(B) 500 ft. 2½-in. hose; 3 salvage covers and small minor equip.
(C) Salvage covers and small equip.

Warsau, Ind.
(A) 1 50-ft. ladder; carbon tetrachloride gun; tape and die outfit for hydrants
(B) Comb. pumper and ladder truck; gas mask; 500-ft. hose
(C) None

West Lafayette, Ind.
(A) 1 emer. first aid truck; inhalator; pulmotor; 2 gas masks
(B) 1 trip. comb. 750-gal. truck
(C) None

Atlanta, Ia.
(A) 500 ft. 2½-in. hose
(B) Light generator; 1½-in. and 2½-in. hose; 750-gal. triple comb. pumper; ladders
(C) Hose; light generator; ladders

Centerville, Ia.
(A) Comb. pumper; 1,000 ft. hose on order
(B) 750-gal. pumper
(C) None

Charlton, Ia.
(A) 600 ft. hose
(B) None
(C) None

Cherokee, Ia.
(A) 300 ft. 2½-in. hose; 1 tarpaulin; 12 helmets; 6 small smoke masks; soda and acid, foam re-charges
(B) None
(C) None

Fairfield, Ia.
(A) 750-gal. triple comb. pumper on order
(B) All-purpose masks; oxygen masks and tanks; Salvage covers; fog or spray nozzles; hose
(C) Hose; masks

Webster City, Ia.
(A) 2½-in. hose; fog nozzles
(B) None
(C) None

Abilene, Kans.
(A) 1 500-gal. pump; 1,000 ft. 2½-in. hose
(B) 1,000 ft. 2½-in hose; 1,500 ft. 1½-in. hose
(C) 1,000 ft. 2½-in. hose

Concordia, Kans.
(A) None
(B) None
(C) None

McPherson, Kans.
(A) 1,000 ft. 2½-in. d.j. hose
(B) Quad truck
(C) Doubt whether truck will be purchased this yr.

Bellevue, Ky.
(A) None
(B) 2 2½-in. rubber play pipe and shut-off nozzles; 1 siamese female connec.; 2 shut-off nozzles; 1 deluge set; 1,000 ft. 2½-in. hose; 500 ft. 1½-in. hose; 500 ft. ¾-in. rope; 2 hand search-lights
(C) Not known

Catlettsburg, Ky.
(A) 1 500-gal. 2-stage centrifugal pumper; 1,000 ft. fire hose. These are on order
(B) Several small pumpers; hose; ladders; light-ing equip.
(C) Trying to purchase some ladders in near future

Corbin, Ky.
(A) None
(B) 2 600-gal. pumpers; lighting system; 1,200 ft. hose; 1 35-ft. ladder
(C) Possibly 1 or 2 front end pumps for hose trucks

Jenkins, Ky.
(A) Hose
(B) None
(C) None

Maysville, Ky.
(A) None
(B) 1 comb. 500-gal. pumper and ladder truck
(C) None

Minden, La.
(A) 45-ft. ladder; 500-ft. hose
(B) Hose
(C) Hose

West Monroe, La.
(A) None
(B) 2 addl. pumpers
(C) Not known

Belfast, Me.
(A) Fully equipped 500-gal. pumper; 500 ft. d.j. hose; 2 fog nozzles
(B) Comb. hook and ladder truck; 6 fire alarm boxes
(C) Not known

Calais, Me.
(A) None
(B) 1 trailer pump; 1 portable lighting unit; 1 ladder truck; 1 750-gal. pumper
(C) Not known

Gardiner, Me.
(A) 500 ft. 2½-in. hose
(B) 1 500-gal. pumper; 1,000 ft. 2½-in. hose; 1 trailer pump; 1 fog nozzle (C) Not known

Old Towne, Me.
(A) None
(B) Hose; a few trailer pumps
(C) Possibly the hose

Sanford, Me.
(A) 1 500.-gal. trailer pump; 1,500 ft. 2½-in. hose; 2,500 ft. 1½-in. hose
(B) 1 portable fire pump for forest fire work, fog nozzles (C) All

Billerica, Mass.
(A) None
(B) 2 600-gal. pumps; 2 500-gal. trailer pumps; 1 jr. aerial truck
(C) 1 600-gal. pumper

Dartmouth, Mass.
(A) None
(B) Hose (C) 500 ft. hose

Franklin, Mass.
(A) None
(B) Portable pump; 1-in; 1½-in. and 2½-in. hose; helmets for aux. firemen
(C) Lighting unit; 1½-in. and 2½-in. hose

Great Barrington, Mass.
(A) Emer. truck equipped with a 500-gal. pump; 1,000 ft. 1½-in. hose; floodlights
(B) 8,000 ft. 2½-in. hose; 2,000 ft. 1½-in. hose; 6,000-ft. 1-in. forest fire hose; 50 5-gal. pump cans; 4 500-gal. pumpers or portable type; boots, helmets and coats; gas masks; inhalators
(C) 1,500 ft. 2-in. hose; 15 5-gal. pump cans; coats, boots, helmets

Hudson, Mass.
(A) 1 all-service truck with 400-gal. front end pump; 1,500 ft. 2½-in. hose
(B) 4 1,000-gal. pumps; 1 75-ft. aerial
(C) Asking for 1 aerial truck at Town Meeting

Maynard, Mass.
(A) Rubber coats, boots and helmets for aux. fire force; 2,000 ft. 2½-in. hose
(B) 1 750-gal. pumper as a replacement; trailer pumps
(C) Not known at this time

Leonia, N. J., Trains Auxiliary Firemen

First two lengths of new lot of 4,000 feet of special 1½-inch fire hose are being hooked up to a fire plug by the Leonia, N. J., fire reserves under the direction of Fire Chief Charles Schanzenbach and his assistant, Frank Watson. Leonia was the first town in New Jersey to install well equipped trailers in strategic locations. Each trailer carries 500 to 1000 feet of 1½-inch single jacket hose manufactured by the Eureka Fire Hose Division of the United States Rubber Company. This small size is especially applicable for speedy action by a reserve fireman in reaching attic fires that might be started by incendiary bombs. Fog nozzles are used. These can be easily manipulated to switch from a solid stream of water used for extinguishing the fire started by the bomb over to the spray necessary for attacking the bomb itself.

NEWARK GETS CRASH TRUCK WITH MANY NOVEL FEATURES

Designed for Handling Plane and Truck Fires and Accidents

THE Newark, N. J., Fire Department has just received a new piece of apparatus. The original plan was to construct an airport crash truck. After studying the different types of crash trucks, Battalion Chief Harry Sommers and Superintendent of Repairs Joseph P. Hackett felt that it was necessary to have a piece of apparatus that would cover a wider field of activity than a crash truck.

The apparatus which resulted could be classed as a triple combination junior pumper. It discharges 150 gallons per minute through two lines of 1½-inch hose and a ¾-inch booster line, produces from 600 to 800 gallons of foam per minute and carries 400 pounds of carbon dioxide gas.

The apparatus is designated as Engine 35 and is stationed directly opposite Newark Airport. It is assigned to airport crash work as well as fires in automobiles and trucks using the extensive state highway system through Newark. It also responds on first alarms to private boxes in hazardous occupancies and street boxes near hazardous occupancies, such as paint and varnish works, chemical plants and bulk oil and gasoline storage plants. It is available to respond to any section of the city, if required. At present it is temporarily manned by a crew of three firemen on each platoon.

Assembling of the apparatus was done at the Newark Fire Department Repair shop by department mechanics. Several tests have proven the unit to be entirely satisfactory.

The truck has a 620 gallon water tank with a separate 46-gallon foam tank. It has a 150 gallon rotary gear pump driven from transmission. Eight 50-pound carbon dioxide cylinders are connected to a manifold with special valves, permitting a discharge of either two, four, six or eight cylinders. The hose reel carries 150 feet of ¾-inch hose and the 100 pound type discharge funnel.

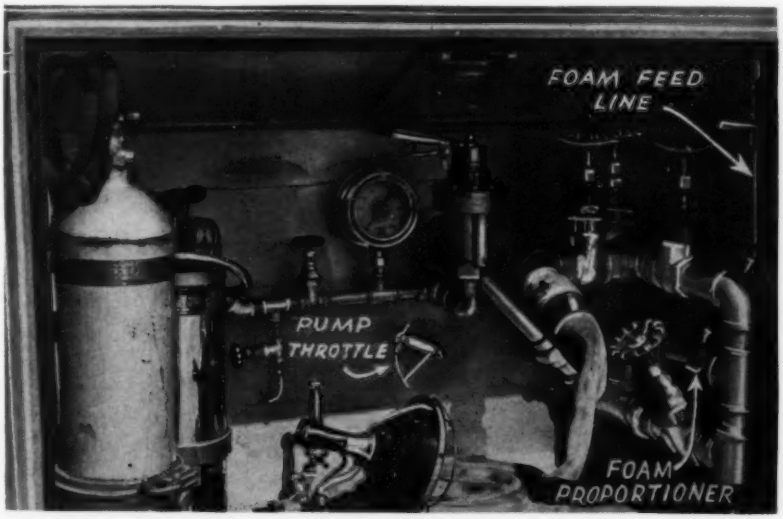
For 350 gallons of foam, one gallon of foam solution and nineteen gallons of water are used. The foam solution is piped from the separate tank to a proportioner placed in the suction line between the water tank and the pump. From the pump the mixed solution is piped to two lines of 1½-inch hose equipped with foam pipes.

Both the water and foam solution can be added to the tanks without shutting down the pump. Foam can be produced continuously and for an indefinite period as long as additional foam liquid and water are available.

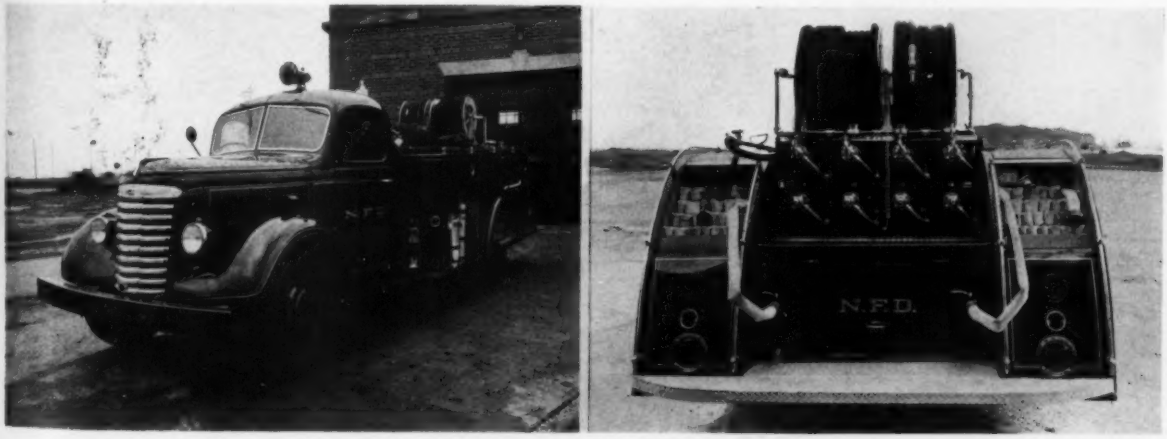
Six hundred feet of 1½-inch cotton rubber lined hose with two shut-off nozzles with ½ and 5/8-inch tips is carried. One hundred fifty feet of ¾-inch booster hose is carried on a separate reel.

The piping arrangement is such that suction can be taken or water supplied from a hydrant to either the pump or tank.

Other equipment carried includes two 1-gallon carbon tetrachloride pressure type extinguishers, two 15-pound carbon dioxide extinguishers, one 2½-gallon foam extinguisher, one 1½-inch vapor nozzle (combination), two 17-ton hydraulic jacks, six oak jack blocks, one half-mile ray portable light, one acetylene cutting outfit, one pair of goggles, two all-service gas masks, two asbestos suits with helmets and gloves, two kerosene lanterns, three road flares and red flags, one 14-foot extension ladder, one first aid kit, assorted splints, stretcher, two sterile sheets, two wool blankets, two rubber blankets, four pairs sanitary rubber gloves, one Kelly tool, two pinch bars, one crowbar, one rivet cutter, two cold chisels, one 8-pound fire ax, one 8-foot plaster hook, one 3-foot plaster hook, four bale hooks,



View Showing Control Apparatus for Foam System



Side and Rear Views of the New Truck

one bolt cutter, one wire cutter, one hatchet, two hammers, one 6-pound sledge, one hack saw, two stillson wrenches, two pairs pliers, assorted open end wrenches, one high pressure wrench, one low pressure wrench, two spanner wrenches, two adapters from 2½ to 1½ in reverse, 20 feet of 1½-inch straight link tow chain, 75 feet of manila rope, one broom and one flat shovel.

Missouri Valley Association May Not Convene

The Missouri Valley Association of Fire Chiefs may omit its 1942 conference due to the large number of chiefs who are so actively engaged in national defense activities. The Missouri Valley Association believes that because of pressure of work many chiefs cannot attend more than one convention, and it believes that by omitting theirs this year the fire chiefs might make an all-out effort to attend the International Association of Fire Chiefs Conference in Grand Rapids, August 4 through 7.

This question has been submitted to the Active Members for a vote by mail. The replies received to date indicate that a large majority of the chiefs favor omitting the 1942 Conference and will make an effort to attend the International's Conference.

Headlough Chief at Ordnance Plant

Chief A. L. Headlough has been chosen to head up the fire protection system in the Plum Brook Ordnance Works at Sandusky, Ohio.

Before his connection with the plant, he was a member of the Akron, Ohio, Fire Department for twenty-nine years, retiring with the rank of Captain, and first on the Civil Service List for appointment as Assistant Fire Chief.

As a member of the Akron Fire Department, Chief Headlough served as Manager of the Fire Prevention activities for the Akron Chamber of Commerce, Acting Fire Warden for the city and for many years as acting Civil Clerk to the Civil Service Commission.

Chief A. L. Headlough

The Chief has lectured on many fire subjects at the Ohio State University, West Virginia University and University of Maryland Fire Schools.

He represented several Ohio cities before the Ohio State Legislature that enacted the present Two Platoon Law.

He is a member of several fireman's associations namely the Ohio State Firemen's Association, the Firemen's Association of the State of Pennsylvania, Firemen's Association of Allegheney County, Summit County Firemen's Association, Wayne County Firemen's Association and the International Municipal Signalmen's Association.

He now heads up one of the finest national defense fire protection organizations in the United States. When he arrived at the Plum Brook Ordnance Works there was nothing but fields and farm houses.

Washington Chiefs Meet

The officers and directors of the Washington State Association of Fire Chiefs and the Washington State Firemen's Association met in Renton on March 8. The meeting was presided over by Clarence Dullahant, President of the State Firemen's Association. At noon the group adjourned to inspect Renton's new fire station.

Because of the war, it was decided not to hold the annual meeting and fire school.

A plan to help train auxiliary firemen was adopted and will be put into operation soon.

W. A. Groce was elected as Secretary to fill the unexpired term of W. P. Roble who has joined the Navy.

Those attending were: Chief W. J. Ryckman of Centralia, President of the Chiefs' Association; Chief E. C. Kuehner of Chehalis; Chief H. W. Bryson of Wenatchee; Chief R. E. Holcomb of Olympia; Chief Charles H. Tracy of Arlington; Chief Claude W. Dutton of Bothell; Chief Ray Hare of Yakima; Chief Ernest Yett of Bremerton; Chief J. F. Caldwell of Ellensburg; Chief A. E. Melander of Pullman; Chief Millo Moore of La Conner; Assistant Chief Bruce V. Nelson of Mount Vernon; Captain J. R. Cook of Seattle; Captain W. K. Moor of Yakima; Wayne Schonover of Zillah; Wilbur Morrison of Auburn; J. C. Pratt of Kennewick; H. G. Halstead of Seattle, Director of the State Board of Vocational Education; and W. A. Groce of Spokane.

Northern California Chiefs Meet

The Northern California Fire Chiefs' Conference was held on April 11 to 12 at Watsonville.

The attendance was large and the program, very educational, including such speakers as Chief Mark Ryan of Redwood City who spoke on the progress of California Fire Chiefs; Richard Graves, Executive Secretary of the League of California Municipalities, whose topic was "Responsibility of the Fire Chief to the Citizens of His Community"; Charles Jones, Chairman of the Division of Forestry, State of California, who covered the "Problems to Be Surmounted by the Division of Forestry in Extending Assistance to Cities and Towns"; James Mace, Coordinator for the State Division of Forestry, who spoke on the "California Fire Defense Plan in Pooling of State Forestry Equipment."

In addition the group discussed the following topics: "Will the O. C. D. Supply Manpower to Assist the Fire Departments," "What Chances Have the Cities or Towns Below 1,000 Population in Obtaining Equipment from the O. C. D.," and "What is the Procedure to Be Taken to Obtain Deferment of the Personnel of the Fire Departments and of the Division of Forestry of the Cities and Towns" which was led by Chief Lloyd Edwards of Crockett.

A demonstration of war gases was held by personnel of the Edgewood Arsenal, for those who were unable to attend the classes at Stanford University.

Jay W. Stevens, Secretary of the Pacific Coast Fire Chiefs' Association spoke on the procedure to be followed by the Pacific Coast Association in holding future meeting during the war emergency.

Scenes at the Northern California Chiefs' Meeting

Top: Demonstration of Incendiary Bombs. Center: Left to right are Fire Chief Tom Lane, Alameda; Chief Tom Ward, Bureau of Trade and Industrial Education, Sacramento, and Chief L. Edwards, Crockett. Bottom: Reading from left to right are Chief Paul Hoberg, Hoberg's Fire Department, Lake County; Chief Bart W. Arundel, East Vallejo; Jan Briscoe, Assistant Chief, Newport Beach Fire Department; Maurice Clement, President of the California State Firemen's Association; Batt. Chief Oscar Vreeden, Hoberg's Fire Department, and V. P. Bartley, Ex-Assistant Chief, Taft.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

FIRE HAZARDS FROM THE STORAGE OF GASOLINE

FIRE Departments today face a new hazard, that of storing gasoline in homes, due to the rationing of gasoline which will take effect in some of the states within a very few weeks.

It is exceedingly dangerous for inexperienced persons to store gasoline in containers in cellars, attics, or sheds even if such containers are designed for that purpose. Improvised containers make matters far worse.

The discussion herewith is a continuation of last month's. The problem in full appears in the box on this page.

HERE IS THE PROBLEM

1. **In view of the threatened rationing of gasoline, and the possibility of persons storing it on premises or carrying extra supply in unsafe containers, what steps would you suggest to prevent such practices?**
2. **Have you legislation already enacted which would enable you to control the hazards of unsafe storage of gasoline around homes or places of business?**
3. **Briefly, what does such legislation include?**

Earl W. Swartz, Chief, Harrisburgh, Penna.: We have no city laws governing the storage of gasoline, for the reason that we enforce the laws of the State of Pennsylvania, which specifically state that no person in the State may have on hand more than five gallons of gasoline, and these five gallons must be kept in a safety container. This applies to all automobile repair shops as well as to private homes.

Olander Lind, Chief, Kansas City, Kan.: I secured the passage of an ordinance some time ago which deals with this particular question.

When the question of rationing gasoline became apparent, I knew that many would try to erect all types of hazardous storage facilities so that they would have a reserve supply, so I drafted the ordinance which is now in effect. It prohibits the storing above ground of more than ten gallons of inflammable liquids having a flash point of 187 degrees or less.

This, however, would not prohibit storage in the tanks of automobiles, but does cover all other storage. We also regulate the filling station, and have gone so far as to prohibit any more above ground bulk oil stations on any trafficway or boulevard.

This, I believe, leaves me in a position where I will have a definite control over the storage question.

Daniel H. Shire, Chief, Mason City, Ia.: There is no possibility of persons storing quantities of gasoline on their premises in excess of one gallon in safety cans, unless it is put in an underground tank outside of the building.

We have a fire prevention ordinance passed in 1937 which takes care of this problem.

Class I and II liquids are prohibited except in one-gallon safety cans. In underground tanks from 500 to 50,000 gallons may be stored, provided the gasoline is from ten to fifty feet away from a building.

A special permit from the Fire Prevention Bureau is necessary for gasoline in excess of one gallon. In excess of five gallons, where it is used for mixing, we used the National Board Green Book, and made it a little tougher in spots.

S. D. O'Conor, Chief, Beaumont, Tex.: We have city ordinances governing the storage of gasoline. Not more than five gallons may be stored around the home, and it must then be in an improved container. Gasoline in business houses must be stored in underground tanks. This is the law, but whether or not it will be observed by all citizens is another question. It will take constant inspection. A severe fine will be assessed against any person found violating this ordinance.

H. P. Constantine, Chief, Bangor, Me.: I would suggest that city ordinances be enacted to cover the storage and handling of gasoline, laws with teeth in them to back up the fire departments and their inspectors and then routine inspections by the fire department to uncover these violations.

The City of Bangor has laws which enable us to control the hazards of unsafe storage of gasoline around homes or places of business.

"Section 2(A) Permit required. No person shall manufacture, store, sell or keep for sale, flammable liquids as set forth in paragraphs (B), (C) and (D) of this section, until a permit or license therefor has been issued by the city council.

"(B) For the storage or handling of a total quantity of Class I liquids 'Gasoline' in excess of one gallon in any dwelling, apartment house or tenement, or in excess of ten gallons outside of any building.

"(C) For the storage or handling of a total quantity of Class 2 liquids in excess of five gallons in any dwelling, apartment house or tenement, etc.

"Application for such permit or license shall be in writing to the city council, and shall specify the particular purpose for which a permit or license is wanted.

"It shall be the duty of the Chief of the Fire Department and of the Chief of the Police Department to make an investigation and recommendation on said applications and the city council may issue a permit or license therefor subject to such conditions, restrictions and limitations as it may determine, or refuse such permit or license as it may deem necessary for the protection of persons and property and the public welfare from the hazards of fire, explosion or accident.

"Whoever violates any of the foregoing sections of this ordinance shall be punished by a fine not less than twenty dollars nor more than one hundred dollars for each offense."

James Sweeny, Chief, Clifton, N. J.: I would suggest that articles be inserted in local newspapers cautioning the people not to store gasoline in any room, attic, cellar, garage or other parts of premises, explaining the danger to life and property if this practice existed; also calling their attention to a city ordinance which prohibits such practice and warning them that a fireman would inspect all premises in the city from time to time. If any person were found storing gasoline contrary to city or state laws, complaints would be made against them and they would have to appear in court to answer the charges.

Permits are required for the storage or handling of a total quantity of Class I liquids in excess of one gallon in any dwelling, apartment house or tenement; in excess of six gallons in any other building and in excess of ten gallons outside of any building. The penalty may be a fine not to exceed $200.00, imprisonment not to exceed ninety days, or both.

L. L. Geisler, Chief, Johnson City, Tenn.: Johnson City's fire prevention code prohibits the storage of gasoline in other than underground tanks.

Wartime FIRE-FIGHTING

. . . EVERY CHIEF KNOWS ITS ADDED RESPONSIBILITY

THE ever-present menace of fire assumes even greater importance and magnitude with the added threats of incendiaries . . . sabotage . . . air raids. Trained men and the most modern of fire fighting equipment are needed more than ever before to wipe out even the smallest "blaze" before it reaches big-area proportions.

Obsolete, antiquated fire apparatus can hardly be expected to meet the extra demands for speed . . . power . . . traction . . . safety . . . dependability required in wartime fire fighting. Investigate modern FWD apparatus and its many advantages of four-wheel-drive power and performance in getting to fires faster — safer — under all conditions of road and weather.

FWD fire fighting trucks are built in a complete line — all types, all sizes — with rotary or centrifugal pumpers in triple, or quadruple combinations in capacities of 500, 750, 1000 and 1250. They are backed by nationwide service facilities with replacement parts available at commercial vehicle prices.

THE FOUR WHEEL DRIVE AUTO COMPANY

Canadian Factory: Kitchener, Ontario

CLINTONVILLE • WISCONSIN

VICTORY OVER FI
IS IMPORTANT, TO

A number of serious fires have occurred in defe plants during the past year. Prevention of such damage is of the utmost importance to the defense eff The purpose of the above poster, recently distribu by the Associated Factory Mutual Fire Insurance C panies to their insured industrial properties, is to attention to fire's serious threat to production. Altho emphasis is properly given to protecting plants aga sabotage, the costly fires which have thus far occur have been due to ordinary carelessness, inadequ employe training, or lack of necessary safeguards.

Fire Engineering, January, 1

FWD Model KSU 750-gallon triple combination p recently purchased by Salt Lake City, Utah. The unit, equipped with five-man cab, is built on a 1 wheel-base and is powered by a 204-horsepower Other equipment includes a 100-gallon booster tank two aluminum ladders, 14 and 24 feet in length. hose body has a capacity of 1200 feet of 2½ inch

FWD FOUR-WHEEL-DRIVE FIRE APP

...UN-HAZARDS REDUCED WITH FOUR-WHEEL-DRIVE

Power and Performance

JUST as surely as you get more than twice as much water through two four-inch fire hoses as you do through one four-inch hose — so do you double your certainty of getting to the fire quicker and safer with four-wheel drive apparatus — for with FWD — all four wheels are alive with power and grip the road for the run — and slippery roads and bad grades, impassable to ordinary vehicles — are safely negotiated with FWD's. The two driving axles of the FWD, delivering powered traction to front as well as rear wheels, give you double protection in safety and dependability — protect the lives of firemen and users of the street — FWD is doubly sure of getting to the fire. Its increased traction and positive control save minutes that count. Cities from coast to coast look to FWD apparatus for this extra safety and performance.

FWD Model KSU 750-gallon triple combination pumper in service in the hilly copper mining city of Houghton, Michigan. The unit is powered with a 200-horsepower engine and built on a 180-inch wheelbase. Carries 119 feet of various length aluminum ladders, 1200 feet of 2½ inch hose, and 200 feet of ¾-inch hose.

The Shell Oil Company recently placed this new FWD Model KHS 500-gallon pumper in service at their Martinez, California refinery. Powered with a 107-horsepower engine. Built on a 180-inch wheelbase. Hose body has capacity of 750 feet of 2½ inch hose and 1200 feet of 1½ inch hose. Foamite equipment has been installed instead of usual booster tank.

FWD

FOUR WHEEL DRIVE

FIRE APPARATUS

***Built By the Oldest and Largest Four-Wheel-Drive Truck Manufacturer**

...HESE FWD MEN SPECIALIZE IN FIRE APPARATUS

...SORENSON—Chief ...urgist and one of ...remost metallur... research men in ...ited States. On ...b 23 years. Knows ...nd of steel that ...FWD's their out... ...ng durability. Na... ...y recognized as ...thority on ma... ...ability of steels.

DONALD OLEN — Industrial Engineer and Production Coordinator at FWD. Gained his industrial experience in the FWD factory, beginning in 1929 and carrying on in various supervisory capacities up to 1939 when he took over complete planning and coordination of all production.

EVERETT BARD—Designer "and artist-engineer" in the FWD Engineering Dept. Began with the FWD organization in 1927 in the factory—like most FWD veterans. His specialty is paint specifications, styling and enhancing the appearance of FWD fire trucks.

...PP...TUS FOR WARTIME FIRE-FIGHTING!

One gallon may be kept on the premises, but this must be in an approved Underwriters' can and away from the main building.

Thomas M. Lane, Chief, Alameda, Cal.: During the year 1934 we had a similar condition during a rationing period caused by the Teamsters Labor Dispute, whereby each service station would limit the amount of gasoline to each person, but the person could go from one station to another to build up a supply.

We did not experience a great amount of trouble at this time because we have an adequate ordinance pertaining to the storage of inflammable liquids, which requires a permit for all storage above five gallons to be kept in tanks of specified gauge construction below ground properly vented and installed.

In addition to this ordinance, we had the newspapers devote a great amount of publicity to the great danger to premises by the illegal storage of gasoline, and asked the residents to cooperate with us.

In regard to the present situation, I believe that with the proper ordinances and the cooperation of our newspapers and citizens that this will be no problem. They are all conscious of the fact that fires must be prevented during this national emergency period.

W. E. Twitty, Chief, Lubbock, Tex.: Due to the fact that we are located in the oil fields, our troubles are not as great as they would should we have to transport the gasoline.

We have nothing more than an insurance ruling, preventing more than one gallon from being stored in a building. That must be stored in an approved can.

George E. Smithers, Chief, Fond Lu Lac, Wis.: The enforcement of the flammable liquids code has been transferred to the City Building Inspector. This code provides that no more than five gallons in a tightly closed container may be stored in any frame building, and not more than ten gallons in a brick or fire resistive building.

My opinion is that dealers should be prohibited by law or ordinance from filling any can over one gallon capacity with gasoline (except, of course, the tank of an automobile or truck). This should apply within the city limits. Any greater surplus should be prohibited unless placed in an underground tank.

E. L. Mathews, Chief, Tuscaloosa, Ala.: So far, I am proud to say, we haven't had any trouble with persons storing surplus gasoline on their premises in unsafe containers.

If we are ever confronted with such a hazard, we have an ordinance prohibiting storing explosive oils within city limits, unless it is stored in a tank of standard make which is in the ground to a depth so that the top of said tank will be not less than three feet from the surface of the ground.

F. A. Murray, Chief, Teaneck, N. J.: There is no question in my mind that the rationing of gasoline will encourage the storage of this product in unsafe containers. I have direct evidence that this practice has already become a reality. This being a fact. it is my opinion that only legislation properly and rigidly enforced will afford a sufficient measure of safety.

Our Fire Prevention Ordinance amply covers the safe storage of gasoline in any type building. Article II, Section 6, provides that "No oil, gasoline, naphtha, benzine, or otherwise similar inflammable or combustible materials shall be stored or kept, except in pursuance of a permit issued therefor by the Chief of the Fire Department; provided, however, this section shall not prohibit the storage or keeping without a permit of not exceeding five gallons of oil, gasoline, naphtha or benzine, if contained in an air-tight metal container."

Article IX, Section 1, further provides that "Any person, firm or corporation violating any of the provisions of this ordinance shall upon conviction thereof pay a fine not exceeding $200.00 for each offense, and any person may be imprisoned in the County Jail for a term not exceeding 90 days, or either, or both, in the discretion of the Magistrate, before whom such conviction shall be had. In case of the failure of any person to pay any fine imposed hereunder, such Magistrate may cause such person to be imprisoned in the County Jail for any term not exceeding 90 days."

Ralph C. Dinkel, Chief, Terre Haute, Ind.: The service stations are prohibited from selling gasoline in the bulk, except in small quantities and only in approved containers. The law reads: "Bulk sales prohibited. No motor fuels shall be dispensed at any service station except directly into the fuel tank of motor vehicles, when such tanks are connected with the carburetion system of such vehicles and such vehicles and such tanks are necessary to the operation of such vehicles, provided, however, that individual sales up to five gallons may be made in approved metal receptacles when painted red and properly labeled.

"Retail sales prohibited. No retail deliveries from tank trucks or tank wagons shall be permitted in any street or alley of any city, village or town, nor on any highway outside any city, village or town, except in extreme emergencies for relief purposes, and then only in quantities not to exceed two gallons.

"Storage of Class I liquids shall be in sealed containers or safety cans of not more than five gallons capacity, and not to exceed a total of ten gallons."

The above are taken from the State Fire Marshal's regulations and are covered by our City Ordinance which reads the same.

C. C. Styron, Chief, Atlanta, Ga.: I would recommend fire prevention education and ordinances covering and limiting storage. Due to the difficulty of discovering violations in homes, I believe fire prevention education the most practicable way of obtaining results in other than places of business.

We have in service the recommended Fire Prevention Ordinance of the National Board of Fire Underwriters.

THIS DISCUSSION WILL BE CONTINUED

Due to the large number of Chiefs who contributed their experiences, the discussion on this subject will be continued in the next issue.

Heating Unit Plant Gets Too Hot

Just as the photo was made, the walls of the Century Heating and Ventilating Company's plant in Akron, Ohio, collapsed as a result of fire which did damage estimated at $300,000. The plant was making heating units for defense housing.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Supplying Water Tower with Water

To the Editor:

Two centrifugal pumps are supplying a water tower. One of them, a 1,000-gallon pumper is working at 220 pounds pressure; the other, a 750-gallon pumper is working at 180 pounds pressure. Each of the pumpers have two lines of 2½-inch hose, 300 feet long.

The question is how will you get the pressure equalized so as to get water into the tower from both pumps without reducing the pressure of the first pumper. B. H. H.

Answer: As the nozzle diameter and the elevation of the tower are not given, it is only possible for us to answer your question in a general way.

The only way to equalize the pressure at the tower (we presume you mean at the tower) is to increase the pressure at the second pumper. However, before 220 pounds is reached the second pumper will be delivering water into the tower.

The pressure at the base of this tower, or at the siamese leading into the tower, will be equal to the pressure at the 1,000-gallon pumper minus the friction loss from the 1,000-gallon pumper to the siamese. Thus the pressure delivered at the second engine would only have to be a little greater than this difference in pressures to deliver water into the water tower.

Relaying Hose Lines

To the Editor:

I am an engine pump operator and driver and am looking for some information concerning long relay layouts. I know that when pumping for about 1,500 to 2,000 feet, you take four-fifths the distance from the first engine to the second engine. When you pump, for instance, 3,000 to 4,000 feet from a fire, how far apart must you station each pumper? Is there a formula for these layouts?

I know that in England there have been as many as fifteen engines in relays. Could you tell me how far apart they should be?

What are the value of "K" for small size tips?

Should you put a 1,000-gallon pumper at the hydrant or lake and put a 750-gallon pumper near the fire, or is it vice versa? J. F. L.

Answer: Where three or four engines are to be used in a line of hose to relay water a great distance, the simplest layout is to place the engines at equal distances apart. In other words, the length of hose from the first to the second engine, the length from the second to the third engine and from the third engine to the nozzle, should be equal. This does not give 100% efficiency, but it is the simplest manner of placing the engines and quickest to be accomplished.

Below are given values of "K" for 1½-inch and 2½-inch hose with small nozzles.

Size of Nozzle	1½-inch hose	2½-inch hose
¼-inch	.0084	
⅜-inch	.036	
½-inch	.104	.0115
⅝-inch	.234	.023

With reference to the placing of the larger of two engines in relay, the usual method is to place the larger engine at the source of supply and the smaller capacity at the end of the stretch from the first to second engine.

However, if both are well-built fire engines and are capable of sustained performance, there is probably the advantage in placing the larger engine nearer the fire. Here is the reason: The stretch from the first to the second engine would probably remain constant, and therefore the load at the first engine would remain constant. From the second engine to the fire, the stretch may be varied as the fire progresses, and additional hose may be added. In this case you'd want additional power on the part of the engine to handle the longer stretch. In other words, the second engine would have the additional capacity, or flexibility, to take care of any changing conditions at the fire, while the first engine would have a fairly constant load at all times.

However, there is a very marked difference of opinion as to the placement of the two engines, particularly in view, as some express it, of the small engine falling down. However, there would be just as much danger of the large engine failing as the smaller, if they are both well built. Therefore this particular argument does not hold.

Extinguishing Incendiary Bombs

To the Editor:

What is the best method of extinguishing incendiary bombs? Is carbon tetrachloride effective? C. P.

Answer: Carbon tetrachloride extinguishers are not satisfactory for use in connection with incendiary bomb fires. Within the incendiary bomb is a mixture of iron oxide and aluminum. When this mixture burns, molten iron results. The discharge of carbon tetrachloride on molten iron does generate a poisonous gas, but we are not sure whether it is phosgene or some other combination of chlorine that does the damage.

However, if there is good ventilation, and if the person does not expose himself to any gas that is generated upon the discharge of carbon tetrachloride upon hot iron, there should be no harm done.

Soda and acid extinguishers, foam extinguishers, methyl bromide extinguishers, carbon dioxide extinguishers and water are perfectly safe for anyone to use.

For incendiary bomb fires, a water spray seems to be the most satisfactory, for it speeds up the burning of the bomb and at the same time prevents the fire from spreading to adjacent combustible materials.

Open Butt Pressure, Etc.

To the Editor:

The following problem has been asked and would like to have your opinion of same. 1,500 feet of 2½-inch hose is connected to a fire hydrant. What will be the pressure at the end of the line (open butt)? What will be the flow in gallons per minute? What will be the friction loss in this layout? What will be the friction loss at the following distances from the hydrant: 250, 500 and 1,000 feet?

If this line was connected to a 500-gallon pumper, will this layout furnish enough water for an effective fire stream through 100 feet of 1½-inch hose using a ½-inch nozzle?

Answer: If the flowing pressure in the hydrant remains at 68 pounds, the calculations for open butt pressure, etc., are as follows:

"K" for 2½-inch open butt on 2½-inch hose is 3.35.

$$\text{Butt pressure} = 68 \div (1.1 + 3.34 \times 30)$$
$$= 68 \div 101.6$$
$$= .67 \text{ pounds.}$$

This is the pressure at the open butt in pounds per square inch.

$$\text{The discharge} = 29.7 \times d \times d \times \sqrt{P} \times .90$$
$$= 29.7 \times 2.5 \times 2.5 \times \sqrt{0.67} \times .90$$
$$= 152 \times .90 = 136.8 \text{ gallons per minute.}$$

Friction loss in 100 feet of 2½-in. hose carrying this flow is equal to $2 \times 1.368 \times 1.368 + ½ \times 1.368$, or 4.424 pounds.

The friction loss in 1,500 feet is $15 \times 4.424 = 66.36$ pounds.

The friction loss at 250 feet from the hydrant would be $2.5 \times 4.424 = 11.06$ pounds.

The friction loss at 500 feet, 22.12 pounds.

The friction loss at 1,000 feet, 44.24 pounds.

If a 100 foot line of 1½-inch hose is supplied by a pumper which is attached to the end of the 1,500 foot line of 2½-inch hose, and the ½-inch nozzle is used on the end of the 1½-inch line of hose, there would be plenty of water coming through the 2½-inch line to furnish all that the ½-inch nozzle would require.

Specifically, if the pressure at the ½-inch nozzle were 50 pounds, the discharge would be 52.5 gallons per minute. As the 2½-inch line supplies around 137 gallons per minute, there would be sufficient water to take care of two such 100-foot lines of 1½-inch hose.

One Time Hose

To the Editor:

Is linen hose one time hose? What is meant by a loaded stream extinguisher? Is it practical to conduct fire drills in office buildings?

B. W. J.

Answer: If by "one time hose" is meant that the hose can be used but one time, then the answer to the question should be "false." Linen hose, if dried after each use, will serve for years. Furthermore, where the linen is treated against mildew, it can give good service without the same care in drying each time it is used.

A loaded stream extinguisher is one where the extinguishing solution is charged with chemicals, such as potassium salts.

There is very little information available on fire prevention in office buildings. As far as drills in these buildings are concerned, it would not be very easy to conduct such drills, due to the fact that it would be difficult to contact everybody in the structure and get them to cooperate as a unit when the drills are conducted.

However, in London, evacuation drills are held, when a signal is sounded, and there has been no serious problem in connection with such drills. Air attacks have been common abroad and there is always a consciousness of recurring attacks so that cooperation is gladly given.

The United States Office of Civilian Defense recently issued a publication entitled "Protection of Industrial Plants and Public Buildings." Copies may be secured by writing to the Office of Civilian Defense, Washington, D. C.

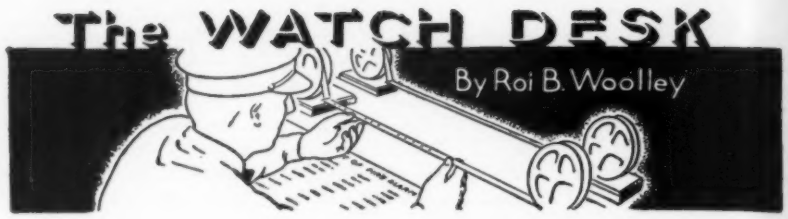
Railroad Car Aids in Defense

Equipped with modern fire and bomb fighting apparatus, the nation's first defense railroad car stands on a siding at the Boston, Mass., freight yards, ready to speed to any disaster.

The unit already has passed a test demonstration at Lynn, where a test fire was set on a dock. It took the car personnel only 41 minutes to cover the 15 miles to the blaze, set up equipment, and begin pouring water on the burning building.

The defense car is equipped with two 500 gallon pumps, six hose lines, extinguishers and miscellaneous auxiliary apparatus, including first aid kits.

THOMAS F. MAGNER.



Our inquiring reporter overhauls the firemanic news of the day

Keeping 'Em Rolling!

Explanation of unusual activity of Vol. F.D. of North Belmore, (L. I.) in last year was offered in District Court of Hempstead (L. I.) when nine members were arraigned on charges of malicious mischief. They were accused of starting 33 of the fires to which trucks rolled in last 12 months. Thirty of the blazes were brush fires it's said. Vamps would drive out to vacant lots, sprinkle gasoline around brush piles and fire them, then hustle back to the house to be "on the button" when the alarm was received. It is reported that if no one turned in an alarm, they'd stand at the window until sight of a red glow in the distance would give them a legitimate excuse for going into action. Following all-night investigation by Edw. Robinson Asst. Dist. Attorney and George Clough, Fire Marshall, Nassau County, (whose suspicions were aroused at unprecedented number of fires in the district), the defendants were arraigned.

* * *

Chief's Children Escape

Another yarn comes from Johnny Weisberger. This tells about bolt of lightning that seriously damaged home of Fire Chief and Mrs. Everett B. Wood, Plymouth (Mass.) Following an outside antenna, bolt entered house, tearing through several rooms and blowing out every window — but miraculously not harming the two Wood children. Mrs. Wood, ironing in the kitchen likewise was uninjured.

* * *

Chief Siller Explains

Coupla months back we recounted yarn about a chief who, while located right "ferninst" a certain fire alarm box heard, over his car radio, a second alarm turned in from that very box—yet no one but himself was near it. We asked the Cognoscenti for their verson of "how come" and published several, promising to print what really happened at a later date.

Now comes the explanation from Chief Edward Siller—newly-made Chief —of the Yonkers (N. Y.) F. D. We quote his own words:

"Here's how it happened. At 3:30 P.M., Oct. 17, 1941, an alarm was received from station 3161. On arriving at station found it was a false alarm. My aide re-wound box and was getting into car, when over the radio in my car I heard an announcement of a second alarm from station 3161, the same station I was sitting in front of. We precede all telephone alarms by 2-2 on bell circuit and then announce call over loud speaker system, then follow this by two rounds on alarm circuit. At 3:34 P.M. a fire in another part of City was reported by telephone and when the 2-2 was sounded the Police officer in charge of Radio, did not wait for call which was from station 3215, to be sounded but announced a second alarm over radio from station 3161. This did not cause any delay to the Fire Department, as only Chiefs' cars are equipped with radio and the second fire was covered by Chief of another district. I might add, second alarms in Yonkers are sent by 2 taps on Morse key followed by station number."

And there you have it. If it still isn't clear, tell us—or tell Ed Siller, Chief of the Yonkers Fire Department, "than whom there is no whicher."

* * *

Curb Service at "Merry Clip"

Barber Guy C. Finnegan's customer heard the sirens . . . dashed outside the shop as fire trucks of Los Angeles (Cal.) F. D. screamed to a stop. Barber Finnegan followed, with comb and scissors and proceeded to complete trimming his customer while the latter watched the Brothers extinguish flames in a liquor store.

Neither the news clipping, nor our unnamed contrib' gives us the name of the guy who got the trimming. Hosumever, if we ever saw a liquor store burning we'd investigate! Yessir! Next!

* * *

Dunks Burning Automobile

One way to "extinguish" a burning motor car is to dunk it! Ezra Goins of Buffalo (Ia.) was welding a coupling for a trailer on the rear of his car with torch when the gas tank caught fire. Endangering his own life, he leaped into the machine and raced madly for the levee at Buffalo. By the time he reached there the entire rear of the machine was ablaze. Fortunately, for Ezra, the tank did not explode. Once arrived at the river bank, he backed the car into the Mississippi and submerged it far enough to completely extinguish the flames. Thanks, Earl Robinson!

* * *

Department of Red Faces!

Jerry Daly is responsible for this'un, which came via his daughter, in San Diego. Seems that during a boxing match in the Coliseum Boxing Arena, that city, the announcer excitedly clambered into the ring between rounds, and shouted:

"Will the owner of the car with such-and-such a license report to his auto immediately on account of its on fire!"

While the crowd wise-cracked, Battalion Chief Eddie McLarney of the San Diego Fire Department sheepishly slipped out of his seat and with red face

sidled up the aisle, to break into a run the minute he got out of the crowd. And sho' 'nuf, it was confidentially—his car—smoking merrily!

The Chief went to work, applied his professional skill and soon extinguished the blaze (we'll bet he'd a lost the "buggy" before he'd have called out the Brothers!)

* * *

Help! Fire! Police!

A New Jersey buff, unknown to us by name, sends us an item about doings in Teaneck (N. J.) which tells how the smell of smoke caused Police Sergeant Jack Mollahan to investigate. He found the fire all right—of all places, in the headquarters fire alarm box! The sargeant ripped out the short-circuited wires, then called the Fire Department for repairs. Which reminds us of the wheze the firehouse wisecracker pulled: "I got a good story about a fire alarm box, but I don't dare pull it!"

* * *

How They're Dying

Three women, three men died in Elcanor Hotel fire, Akron (O.). A stuck fire escape ladder contributed to deaths. Cause —?

* * *

Two girls, 11 and 8 years old burned to death and their parents were badly injured in destruction of "Harry's Log Cabin" near Mountain View (N. J.). Patrolman burned in effort to effect rescue. Local F.D. notified by "anonymous call."

Burning of Hotel Southern, Chattanooga (Tenn.) resulted in death to five, with six missing.

* * *

Audrey Goodstein, 17 searching for a hot water bottle in a closet with a match dropped match on bottle of insecticide. Resultant fire spread through apartment and up stairs of tenement, killing a newsdealer and his son, 6, injuring five others—all members of the Popwitz family.

* * *

Joseph Orleans, 40, went to roof of 6-story Brooklyn (N. Y.) apartment removed his clothes, poured gallon of kerosene over his naked body and struck a match. Ablaze, he leaped from rooftop, was killed when he landed on picket fence. That's making "assurance doubly sure"!

* * *

During their mother's brief absence (the old story of leaving children all alone) 3-year old Emily Bingham and little brother Robert Jr. died of burns received when fire destroyed their home in Rensselaer County (N. Y.).

* * *

Then there were the five inmates of the "drunk tank" of San Diego's new "model jail" who perished in a fire started by an overnight occupant of the padded cell. Twelve others were injured!

* * *

When a 4-room frame house burned near Emlenton (Pa.) seven persons were burned to death—4 of 'em children! Only a son escaped. "Overheated stove."

* * *

Eight persons, including a family of 5, perished in blazing ruins of two Bay City (Mich.) homes. One family of five died in farm home fire, two were lost in the Bay City fire.

THREE CITY BLOCKS RAZED BY BIG FIRE AT KEWANEE, ILL.

Over Twenty Buildings and More than Fifty Office and Small Store Rooms Burned Out

THE greatest conflagration in the history of Kewanee, Ill., destroyed nearly three city blocks of the business section on April 13 and caused a loss estimated at between $2,000,000 and $2,500,000. The fire started shortly before 2 a.m. in the second floor of the Kewanee Dry Goods building.

Two Views of the Ruins

An unofficial count shows over twenty buildings and more than fifty office and small store rooms burned out. For many of the professional men such as lawyers and physicians, the loss in office equipment is high. Lawyers lost files of their cases and law libraries which had taken a lifetime to collect.

Kewanee's small force of firemen fought valiantly under Chief Al Stuhlsatz to stop the spread of flames, but were handicapped by lack of hose, other equipment and manpower. Departments from Galesburg, Peoria,

Air View of the Disastrous Kewanee Fire
Charred walls beside piles of smoking debris attested to the fury of the big fire which raged through sections of three downtown by blocks.

Wyoming, Galva, Toulon, Cambridge, Neponset, Bradford, Sheffield, Wyanet and other cities rushed to Kewanee to give assistance when it appeared that the entire business section was doomed.

Fire-blackened walls were all that remained within an hour of the Kewanee Dry Goods building, the Leader Store, Carps department store, the Rialto Theater building. The blaze quickly spread across North Tremont Street, fanned by an east wind, to the Kewanee Public Service Company. Within a half hour the power company's headquarters were gutted by flames and the fire was fanning out north and south.

The J. C. Penney building, the Kirley block and the Kewanee Production Credit structure were involved next.

The City Furniture store was saved by prompt action of firemen on the roof, with the assistance of the water curtain from "The Star-Courier" sprinkler system.

The fire, carried by wind and flying embers, then swept through the West Second Street block, consuming the Baker building which was a fire target in 1930. Only the concentration of hose and fire fighting equipment saved the Parkside Hotel.

All available firemen, police reserves, sheriff's deputies, defense council deputies, Company C guardsmen in uniform took over the job of policing the blaze, shifting hose and holding back the night crowds.

Only the eight and twelve-inch water mains the city installed in the business district prevented complete destruction of the city's business district. These mains kept water pressure at sixty-five pounds or better throughout the fire, and sufficient volume to handle twenty hydrant leads with auxiliary pumpers.

UNDERWRITERS' LABORATORIES HOLD ANNUAL MEETING IN CHICAGO

Activities of Past Year Greatest in History; Cause of Fall River Rubber Fire Established

THE annual meeting of the members and directors of Underwriters' Laboratories, Inc., was held on April 10th at the main testing station in Chicago.

Alvah Small, President of the Laboratories reported that during each month of 1941 the services of the Laboratories were employed to an extent exceeding that of the corresponding month of any previous year.

At the request of the National Government and of many municipal, state, industrial, and insurance groups many special problems have been investigated during the year.

Priority control of critical materials has resulted in a steadily increasing stream of proposals for substitutions in the products tested by Underwriters' Laboratories. The safety standards for a large number of products have been revised where necessary to permit the recognition of these substitute materials "for the duration only"; but in all cases there is assurance that the safeguarding of equipment is maintained at a high level.

R. B. Shepard, Chief Electrical Engineer, reported a decline of eighteen per cent in the work of investigating new electrical products. "This," said Shepard, "reflects the increased use of electrical manufacturing facilities for war products."

Asa H. Nuckolls, Chemical Engineer, reported that increased government purchases of fire hose tested and labeled by Underwriters' Laboratories had required an eighty per cent increase in the work of check-testing the rubber linings.

An investigation conducted by the Chemical Department of the Laboratories aided in establishing the cause of the $11,000,000 Fall River rubber fire in which 14,000 tons of rubber were destroyed on October 11, 1941. The work done by the Laboratories' engineers determined that spontaneous ignition of sponge rubber was the cause. This was the largest single industrial fire loss in recorded history. The loss was more serious, it was said, than the dollar value alone would indicate, because of the destruction of such a vast quantity of crude rubber urgently needed for war material production and irreplaceable under present conditions.

"Other work undertaken by the department," said Mr. Nuckolls, "was the testing of electrically conductive rubber for use as floors and soles and heels of shoes. This material was tested to determine its value in preventing ignition of flammable vapors or dust by static electricity in shell-loading and munitions plants and in hospital operating rooms."

"Work continues," said Mr. Nuckolls, "on specially designed explosion-proof motors, lighting fixtures, and other electrical equipment for use in hazardous locations." Much of this electrical equipment is finding its way into munitions plants. Although explosion-proof electrical equipment of this type is not specifically designed for use where high explosives are involved, it is nevertheless the safest available type and is being widely used.

E. J. Smith, engineer of the Gases and Oils Department, reported that priority control of copper and brass has made it necessary to substitute other materials for fire extinguisher parts which heretofore have principally been made of copper, brass, or bronze. The department has worked closely with the fire extinguisher industry and with the Federal Government on this problem. The Laboratories are also constantly being consulted with respect to the 4-gal. size pump tank fire extinguisher which, it is proposed, will be made in large quantities for OCD use.

"Two outstanding activities of the Hydraulic Department in 1941," reports Mr. R. W. Hendricks, Hydraulic Engineer, "were the development of a substitute for the conventional cast-brass fire hose coupling and, secondly, the investigation of ways of controlling or extinguishing magnesium fires in chips, dust, and fines, such as are accumulated in factories machining magnesium castings for aircraft engine parts. Methods of extinguishing magnesium bomb fires are also a part of this investigation."

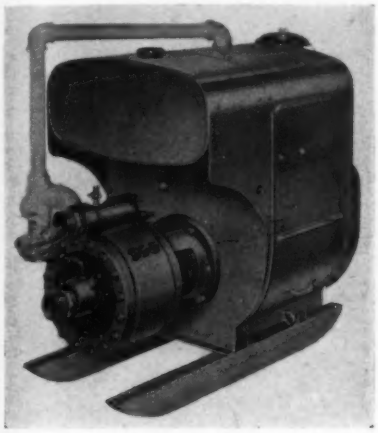
"Our report to OPM," said Mr. Hendricks, "recommending the use of a new type of malleable iron casting fire

(*Continued on page* 306)

Manufacturers' Announcements

American-Marsh Announces New Portable Pump

The American-Marsh Pumps, Inc., of Battle Creek, Mich., recently announced the addition of a new portable pump to their line. This MXF unit is larger than the usual portable pump.



MXF Portable Pump.

It weighs 600 pounds. It is a compact, horizontal three-stage centrifugal pump of simple design capable of pumping at high pressures and is directly connected to a Wisconsin type VF-4 gasoline engine.

The suction opening is 2½-inch National Standard thread, and the opening is located in the center of the outboard suction head. The discharge opening is 2-inch National Standard thread located on top and in front of the casing parallel to the suction opening. Both openings are provided with cap and chain. Both openings are readily accessible.

The pump casing itself is of the volute type, vertically split and fastened to the gasoline engine by means of a heavy flanged yoke. The impellers are of the single suction type and connected in series by properly shaped and proportioned passages within the casing. The impellers of the second and third stage are arranged "back-to-back" to balance the greater part of the end thrust.

The casing suction head and yoke are of cast iron containing up to 40% steel. The impellers, impeller rings and stuffing box gland are of hard bronze. Pump shaft is of high-grade alloy steel.

The unit is offered with exhaust type automatic primer suitable up to 20' suction lift. This type of primer utilizes the engine exhaust for providing the vacuum necessary to lift water and is very positive in action.

Performance is as follows:

10 GPM—350 pounds Pressure
50 GPM—300 pounds Pressure
75 GPM—230 pounds Pressure
100 GPM—225 pounds Pressure
175 GPM—100 pounds Pressure

The engine used is a Wisconsin Model VF-4 four-cylinder, four-cycle V-type air cooled with 3" bore and 3¼" stroke. The pistons are of aluminum alloy with the valve seat inserts of molybdenum iron. The cylinders are cast in pairs of nickel iron and are separate from the crank case: Cylinder heads are cast in pairs of aluminum alloy. The crank shaft is mounted on Timken roller main bearings. The fuel tank capacity is six gallons and standard accessories include governor, oil bath type air cleaner and crank type starter. The unit can be furnished for operation on other fuels than gasoline and with an electric starter and generator.

New Electronic Air Raid Siren

A new electronic type air raid siren, designed to give both great volume for alarms as well as a simple method of crowd control, has been announced by Audiograph Division of John Meck Industries, 1313 West Randolph Street, Chicago. Called the "Electro-Siren," this unit makes use of a vacuum-tube tone generator which can either duplicate the rising and falling tone of a mechanical siren, or can be set at any pitch for best audibility over traffic or manufacturing noises. It can also be used to send code messages to air raid officials by dots and dashes. Special circuit design allows fifty per cent more power than is possible from an ordinary sound system.

Electro-Siren.

A feature of this new unit is an arrangement so that a microphone can be used for voice announcements over the same system, which takes the place of a public address system. This is important in avoiding confusion and panic in crowded places.

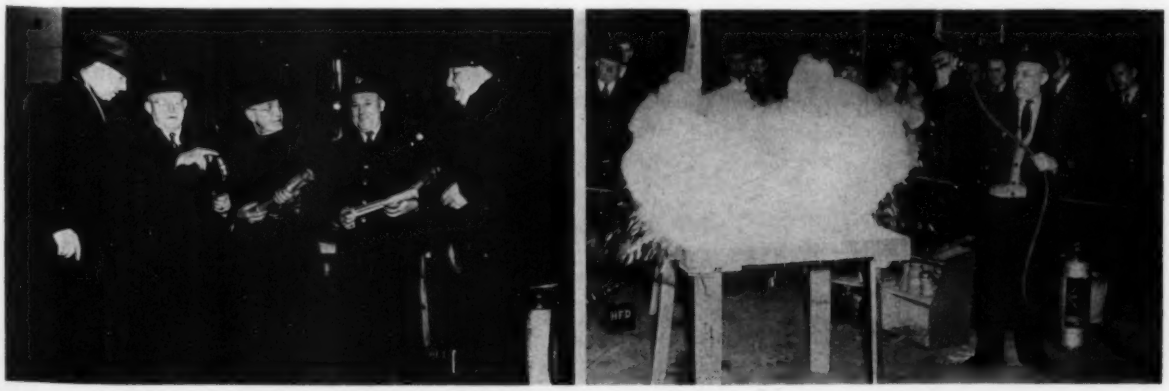
The Audiograph "Electro-Siren" normally operates from any 110 volt source, but in the case of current failure can be instantly switched to 6 volt storage battery operation. It can also be used in chiefs' cars or other vehicles, operating from the car battery. The largest system can be operated continuously for four hours from a fully charged battery.

(*Continued on page 320*)

Harrison Department Trains R. C. A. Firemen

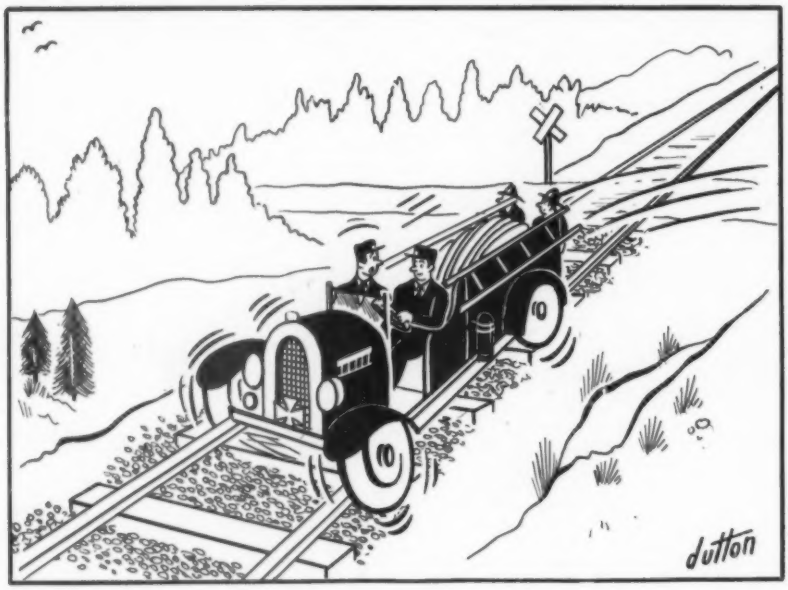
The Harrison, N. J., Fire Department, of which Andrew T. Callahan, President of the International Association of Fire Chiefs, is Chief, has been doing very effective work in training defense industries in Harrison in fire protection. Recently members of the Harrison Fire Department gave the fire brigade of the Radio Corporation of America a course in fire fighting, involving incendiary bombs. A number of demonstrations were conducted, showing the right and wrong way of handling fires involving these bombs, as well as the methods of removing burning bombs from premises.

The illustrations herewith show one of the demonstrations in which a solid stream of water is being directed on a small magnesium bomb, and the violent reaction which takes place as a result of this operation.



Left: Fireman Coburn of the Harrison, N. J., Fire Department Demonstrates the Improper Use of Water on a Magnesium Bomb Fire. Right: J. P. Stillwell, R. C. A.; Fire Chief Andrew T. Callahan, Harrison; Plant Fire Chief Fred Knapp; Fireman J. Coburn and Fireman T. Goodman of the Harrison Department. Chief Callahan Is Showing Spray Nozzle Developed in the Harrison Fire Department.

FALSE ALARMS



"I Don't Care If This Is a Shortcut—I Just Don't Like It!"

The Drudge

If you put your nose on the grindstone rough,
And keep it there long enough,
In time you will say there is no such thing
As brooks that babble and birds that sing.
Three things will your whole world compose,
Just you and the stone, and your damned old nose.

—Anonymous.

"Won't your wife hit the ceiling when you go in this late?"
"Probably will . . . she's a hell of a shot."

Salesman: "I represent the Valley Wool Company, Ma'am. Would you be interested in some coarse yarns?"
She: "Gosh, yes, tell me a couple."

Guide "Now we shall see the sarcophagus of King Tut."
Bashful Young Girl: "I'd better wait here."

"I miss the old cuspidor since it's gone."
"You missed it before; that's why it's gone."

Teacher: "Spell straight."
Johnny: S-t-r-a-i-g-h-t.
Teacher: "Now another way."
Johnny: "With soda."

The lady was sipping her first glass of gin when she suddenly exclaimed: "Why, this tastes just like the medicine my husband has been taking for the past twenty years!"

Hard of Hearing

When novocaine first came into use, a local dentist in a nearby town tried it out as an experiment. He injected the drug in the jaw of his patient, an elderly man, and then asked him how he felt. There was no answer. The dentist waited a minute and asked, "How do you feel now?" Still no answer. Nervous, the dentist grabbed a glass of ice water and threw it in the patient's face to revive him. The man jumped up and yelled, "Good Heavens, what ails you? I'm all right. I'm just hard of hearing."

He who courts and does not wed
May have to go to court instead.

"Who was that lady I seen you out with last night?"
"I wasn't out. I was just dozing."

They have separate wards in insane asylums for men and women. They're not as crazy as you think.

Running after women never hurt anybody—it's catching them that does the damage.

English professor: "Give me an example of paradox."
Student: "Two M.D.'s."

She: "Would you like to see where I was operated on for appendicitis?"
He: "No, I hate hospitals."

"Aw Come on, Joe—You Carried the Last One Down"

following comparative tests by National Bureau of Standards

WASHINGTON, D. C. *orders* 22 FOSTER SIRENS

Before placing an order for air raid sirens, the Commissioners of the District of Columbia asked the National Bureau of Standards to conduct comparative tests on the several types of horns and sirens offered for air-raid-warning service.

These tests conclusively proved that the Foster Siren has a higher average decibel rating — a wider range of audibility — than any of the other types tested. As a result of these tests, twenty-two Foster Sirens will be installed in Washington's permanent air-raid-warning system.

Before you purchase sirens, we suggest that you send for details of these tests and their results. A sixteen page booklet containing this information, as well as a descriptive folder on the Foster Siren will be sent without cost or obligation. Simply ask for Reprint MSE and Bulletin 41-S.

This siren not only can be heard for miles, but it needs no pampering. The simple design includes but few parts, and these are constructed to withstand "emergency service."

Furthermore, it works fast — its rising sound pitch or howl reaches its peak in from three to five seconds, depending on the maximum pitch for which this siren is set. And—it can be used for signaling because of its sharp sound cut-off.

If a constant pitch is desired, this siren can be so ordered or factory converted into a revolving cylinder-type of horn which produces practically a single pitch from starting to full speed, as contrasted with the conventional siren action with rising pitch or howl.

Type 30 Foster Siren
(Small Size)

Size of Valve:	1¼ inch (female thread)
Actuating Medium:	Steam or Air
Pressure:	50 lbs. minimum—200 lbs. maximum
Temperature:	450 degs. Fahr. (total)
Consumption:	Steam—approx. 1100 lbs. of steam per hour
	Air—approx. 500 cu. ft. of free air per minute
Diameter of Rotor:	3 inches
Diameter of Horn:	8½ inches
Net Weight:	60 lbs. (assembled)

Type 45 Foster Siren
(Large Size)

Size of Valve:	1½ inch (female thread)
Actuating Medium:	Steam
Pressure:	75 lbs. minimum—200 lbs. maximum
Temperature:	450 degs. Fahr. (total)
Consumption:	Approx. 3000 lbs. of steam per hour
Diameter of Rotor:	4½ inches
Diameter of Horn:	18 inches
Net Weight:	110 lbs. (assembled)

Both the Type 30 and the Type 45 Foster Siren can be furnished with a solenoid operated valve for electric remote control, either for separate "push button" operation, or tied in as an integral part of an air-raid-warning or fire-alarm system.

FOSTER ENGINEERING Company

PRESSURE REGULATORS... RELIEF AND BACK PRESSURE VALVES... AUTOMATIC STOP AND CHECK VALVES... ALTITUDE VALVES... DAMPER REGULATORS... FAN ENGINE REGULATORS... PUMP GOVERNORS... TEMPERATURE REGULATORS... LIQUID LEVEL CONTROLLERS... FLOAT AND LEVER BALANCED VALVES... NON-RETURN AND TRIPLE DUTY VALVES... VACUUM REGULATORS OR BREAKERS... SIGHT FLOW BOXES... STRAINERS... SAFETY VALVES... SIRENS

109 MONROE STREET • NEWARK, N. J.

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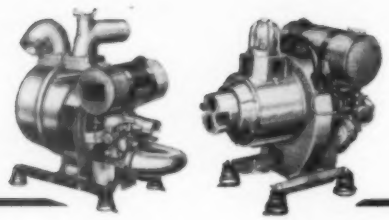


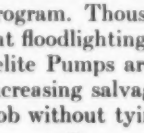
Winning Battles on the Home Front

HOMELITE

Portable Pumps & Generators

They Reduce the Damage of Fires

Fires are friends of the Axis. And all over the country, Fire Departments are doing everything possible to keep fire losses down to an absolute minimum. Homelite Portable Generators and Pumps are helping out in this program. Thousands of departments are using the generators to supply brilliant floodlighting that men need for safety and efficiency on night fires. Homelite Pumps are used not only because they dewater cellars fast, thereby increasing salvage, but also because they can be put on a job and left on a job without tying up the services of a truck.

Keep them Fit for  a Fighting Job...

New Homelite Generators and Pumps are hard to get these days. But it is easy to get better and longer wear out of your present Homelite Units by just a little care. 1. Mix ½ to ¾ pt. of oil with each gallon of gasoline used. 2. Don't use the choke for a throttle. 3. Keep sparkplugs in good condition. 4. Keep the carburetor set on the lean side. 5. Keep the engine free of carbon.

SEND FOR THESE BOOKS. Our free service manuals will show you how to keep your Homelites fit for a fighting job. Send for copies, specifying the model and serial numbers of your present Homelite Generators and Pumps.

HOMELITE CORPORATION

805 Riverdale Ave., Port Chester, New York

Underwriters Meet

(*Continued from page* 302)

hose coupling having a low brass swivel part, is included in current federal specifications for the purchase of fire hose."

The effectiveness of a number of different manufacturers' materials produced for extinguishing magnesium fires has been investigated and other investigations along this line are now under way.

"Our experiments with the problem of controlling magnesium fires and incendiary bomb fires will shortly enable us to offer sound practicable advice to all concerned in this matter," said Mr. Hendricks.

G. E. Manning, superintendent of label service, estimated that manufacturers used more than one-half billion Underwriters' Laboratories' labels during 1941 on approved products. This was an increase of 33 per cent over 1940

"Deliveries to defense projects," said Manning, "accounted not only for the increase but perhaps for more than one-half of the total number of labels used."

Engineers of the inspection department have also been most active during the year in checking installations of lightning protection systems on several thousand buildings at munitions plants, shell loading factories, and ordnance depots in all parts of the country. Underwriters' Laboratories' inspection of these installations is a part of the contract awarding the installation jobs to lightning protection companies. The Laboratories' consultation on this work has so simplified the specifications for lightning protection systems as to allow the saving of several thousand tons of copper for other war uses.

New trustees elected at the meeting were: William N. Achenbach, Chicago, Manager, Western Department, Aetna Insurance Company and Piedmont Fire Insurance Company; Charles H. Smith, Chicago, Manager, Western Department, Hartford Fire Insurance Company; J. M. Thomas, Pittsburgh, President, National Union Fire Insurance Company.

Scully Made Erie Fire Chief

Assistant Chief Lawrence P. Scully was unanimously chosen Chief of the Erie, Pa., Bureau of Fire, succeeding Chief Michael P. Leonard who died recently.

A New One for the Firemen

Firemen at Stratford, Conn., added a new one to their list of calls recently when the crew from Headquarters on Main Street were summoned to rescue a quail which had caught a piece of string around its leg and had become entangled in vines on a dwelling on Newtown Avenue.

Fireman John Blersch of the ladder crew freed the feathered creature which promptly winged its way into the fields nearby. When Blersch brought the excited bird from its imperiled position on the vines, Fireman Elmer McFarland suggested "Quail on toast" for a fire house repast, but the rest of the crew voted against his suggestion.

THOMAS F. MAGNER.

WHAT'S BURNING?

THE following list includes fires of $50,000 loss and over in the United States and Canada, for the month of April, 1942. These figures, compiled from the telegraphic reports, are based on estimates made at the time and are subject to later investigation and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent losses in thousands of dollars.

Month Ending April 30	Loss in Thousands of Dollars
Hamilton, Ont. — Factory building housing M & Y Co. damaged	80
Sacramento, Cal.—Chinese store and Sacramento Furniture Co. damaged	70
Waterville, Me.—Haines block, housing restaurant and grill on first floor, with apartments above destroyed and adjacent Masonic Building damaged	125
Buctouche, N. B.—Queen Hotel and general store destroyed and Bellevue Hotel damaged	80
Indianapolis, Ind.—Ace Motors, Inc., damaged and fourteen automobiles destroyed	65
Detroit, Mich.—Buildings occupied by N. Y. A. and Ford Motor Co. damaged at Michigan State Fair Grounds	170
Taunton, Mass.—Two-story brick Taunton Green Building occupied by Sears, Roebuck store, cigar store, hardware store, Biltmore Cafeteria and cleaning shop on ground floor and offices on second floor	165
Hobbs, N. M.—Hobbs High School building destroyed	70
Clinton, N. C. — Sampson Cotton Storage warehouse and 700 bales of cotton damaged	50
Abilene, Tex.—Western Compress & Storage Co. destroyed with 4,000 bales of cotton	350
Morrison, Va.—Wholesale grocery and building material plant damaged	150
San Bernardino, Cal.—Government warehouse destroyed	50
San Francisco, Cal. — Magnesium grinding mill of National Metals Company damaged	80
Akron, Ohio—Century Heating & Ventilating Co. destroyed and adjoining building damaged	250
Portland, Ore.—Portland Shipbuilding Co. damaged	50
Lemon, S. D.—Raney Building destroyed	70
Worcester, Mass.—Mayfair Hotel building gutted	65
Worcester, Mass.—Piedmont Congregational Church destroyed	50
Forest City, Ark.—Mann Building in business section damaged	80
Custer, S. Dak.—Fay Chevrolet garage and 45 autos and trucks, tires, parts, accessories, machine shop tools destroyed	65
Murray, Utah—Ben Gordon & Sons planing mill and office and display rooms of the Morrison-Merrill Co. plant destroyed	50
Estherville, Ia. — Two business buildings, housing Jay Johnson drug store, cafe, doctor's office and apartment destroyed and several buildings damaged	50
Ottumwa, Ia. — Building housing F. W. Woolworth Co. store and business offices destroyed	80
Durant, Okla.—Dwelling of Frank Dyer destroyed	50
Kewanee, Ill.—Twenty buildings and fifty offices seriously damaged or destroyed in fire which swept two square blocks	2,125
Upland, Cal.—Upland Junior High School damaged	50
Portland, Ore.—Columbia Riding Academy destroyed with thirty riding horses	75
Portland, Ore.—West Oregon Lumber Co. destroyed	80
East Nashville, Tenn.—Warner School destroyed	90
Huntsville, Ala. — Huntsville plant of the Southern Cotton Oil Co. including two warehouses and 2,500 bales of winter cotton	80
Richmond, Ind.—Three buildings in business district destroyed	425
Fincastle, Va.—Fincastle High School destroyed	60
Janesville, Wis. — Grant Store, shops and office buildings in downtown district damaged	225
Stroudsburgh, Pa.—Sherman Theatre building destroyed	125
Luray, Va.—Parkhurst Hotel destroyed	60

Our war production facilities and other essential plants and storage must be guarded against fire. Fire pumps are made of metal.

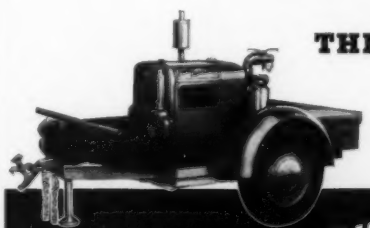
Every pound of metal is extra precious now—every minute of machine time today may be worth an hour next year.

In the light of these facts, the LaBour Fire Trailer deserves special consideration as the best available answer to a difficult problem.

This unit—150 GPM, 100 lb. pressure—has demonstrated by actual performance that it is adequate for the needs of most localities, yet it requires much less metal, much less machine time, and sells for much less money, than large, high-powered trailers whose full capacity is seldom required.

Besides the saving of essential metals and work hours, LaBour Fire Trailers afford greater mobility because of their lighter weight and smaller size. It is this feature, coupled with their simple rugged dependability, that has made them the popular choice in many war-threatened areas outside the United States.

Bulletin 49 gives full details. Send for it at once.



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Elkhart, Indiana
U. S. A.

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Manufacturers of

EMERGENCY SIGNALING SYSTEMS

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- Fire and Watchmen's Supervisory
- Automatic Fire Detection

Two thousand municipalities, several thousand industrial plants and many of the largest institutions now use Gamewell Systems for the protection of life and property and to ensure the permanency of established business.

We freely cooperate in planning protective Signaling Systems.

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Specialists in Public Safety

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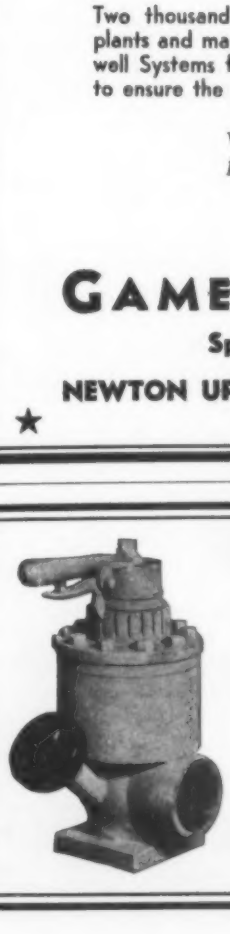


ROSS COMBINATION:

Fire Engine Relief and Manual Shut-off Valve

Sizes: 1" to 2½". Capacities: 300 to 1500 g.p.m. Pressure: 20 to 150 lbs. — one revolution of adjusting handle.

Genuine only with name ROSS on the valve.

ROSS VALVE MANUFACTURING CO., INC.

TROY, N. Y.

Eureka, Cal.—Eureka plant of the Poultry Producers of Northern Cal. destroyed.... 50
Lenoir, N. C.—Lower Creek Baptist Church destroyed 50
Quebec City, Queb.—Plant of J. L. Vachon & Sons, manufacturers of doors and windows destroyed..... 125
Norwich, N. Y.—Sheffield Farms Co. Creamery and barn destroyed and additional by-products plant damaged..... 80
Portland, Ore.—Vital war supplies destroyed in fire which totally destroyed the Campbell Hardware & Supply Co..... 50
Kitscoty, Alta. — Alberta Wheat Pool and Federal grain elevators damaged..... 60
Atlanta, Ga.—Maddox Junior High School damaged 65
Arnolds Park, Ia.—The Floete Mansion destroyed 50
Boston, Mass.—Six-story brick and stone mercantile block..... 65
North Branch, Mich.—Harper Elevator destroyed 125
Woonsocket, R. I. — Storehouse owned by Belmont Woollen Garment Co. destroyed and 350,000 pounds of wool damaged.... 100
Omemee, Ont.—Large tannery of the North American Leather Co. destroyed and nearby dwelling damaged..... 80
Bedford, Ind. — Heltonville school building destroyed 50
The Dalles, Ore.—Trestle of the Deschutes branch of the Spokane-Portland-Seattle Railroad and eleven loaded freight cars... 50
Malaga, N. J.—Thirty-two summer cottages and five acres of woodland on grounds of the West Jersey Grove Camp Meeting Association 55
Clifford, Ont. — Entire business block destroyed 50
Chicago, Ill.—Cogeshall Label Co., Latex Glove Dipping and Manufacturing Co. and the Robinson Furnace Co. damaged... 65
North Charleroi, Pa.—Plant of Federal Foundry and Supply Co. damaged..... 50
Amarillo, Tex.—Two clothing stores, beauty shop, insurance office, investment office and photo shop destroyed..... 135
Yakima, Wash.—Thissius sawmill destroyed 65
Arvida, Que. — Commissary camp of the Foundation Co. of Canada damaged..... 50
Taneytown, Md.—Blue Ridge Rubber Co. plant destroyed..... 420
Worcester, Mass.—Olney Woolen Mill destroyed, three houses and several barns damaged 50
Eureka, Mont.—A. J. Thomas warehouse destroyed with six auto trucks..... 65
Lancaster, Pa. — Convention hall housing Whiting Motor Co. and Olympia skating rink destroyed; and number of residences damaged 250
Mobile, Ala.—Greer's grocery warehouse destroyed 65
Quincy, Ill.—Pape and Loos Milling Co. main unit and ice building destroyed..... 50
Boothbay Harbor, Me.—Business block destroyed 80
Walla Walla, Wash.—Walla Walla mattress works destroyed..... 80
Kinmount, Ont. — Twenty buildings and $8,000 fire truck destroyed..... 170
Plant City, Fla.—Dwelling destroyed..... 50
Baltimore, Md.—King Furniture Manufacturing Co. damaged..... 50

Fire Destroys Large Truck in Tunnel

A fire followed by two explosions on Sunday, April 5th completely destroyed a large trailer-truck and blocked traffic for five hours in the Laurel Hill tunnel of the Pennsylvania Turnpike, near Somerset, Pa.

The truck, loaded with rubberized cable and kegs of paints and varnish, burned fiercely filling the tunnel with heavy clouds of stifling smoke and causing a loss of approximately $10,000 to the tunnel, as well as the complete destruction of the truck and contents valued at $10,000.

Somerset and Mount Pleasant firemen aided turnpike crews in pumping water from the tanks under the tunnel into the burning truck and contents. The tanks, part of the turnpike's fire fighting system, hold from 2,000 to 3,000 gallons of water which sweeps down from the Allegheny mountains.

WILLIAM E. PATTERSON.

Convention Dates

May—NEVADA STATE FIREMEN'S ASSOCIATION. Annual meeting. Sparks, Nev. Secretary, E. R. Simms, Sparks, Nev.

May 11-15—NATIONAL FIRE PROTECTION ASSOCIATION. Annual meeting. Atlantic City, N. J. General Manager, Percy Bugbee, 60 Batterymarch Street, Boston, Mass.

May 13-15—GEORGIA STATE FIRE COLLEGE. Annual meeting. Atlanta, Ga. Director, Harry Phillips, Atlanta, Ga.

May 18-20—NEW YORK STATE ASSOCIATION OF FIRE CHIEFS. Annual meeting. Schenectady, N. Y. Secretary, Chief Chris W. Noll, Poughkeepsie, N. Y.

June—NORTH DAKOTA FIREMEN'S ASSOCIATION. Annual meeting. Botteneau, N. D. Secretary, H. R. Handtmann, Fargo, N. D.

June—SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. Annual meeting. Newberry, S. C. Secretary, Chief Paul E. Wilburn, Union, S. C.

June 1-5—SOUTH DAKOTA FIREMEN'S ASSOCIATION AND FIRE SCHOOL. Annual meeting. Watertown, S. D. Secretary, M. C. Sullivan, Parkston, S. D.

June 2-3—IOWA ASSOCIATION OF FIRE FIGHTERS. Annual meeting. Sioux City, Ia.

June 8-10—MINNESOTA STATE FIRE DEPARTMENT ASSOCIATION. Annual meeting. Shakopee, Minn. Secretary, Fred Pfaender, New Ulm, Minn.

June 8-10—NEW MEXICO STATE FIREMEN'S ASSOCIATION. 13th Annual Fire School and 20th Annual Convention. Las Vegas, N. M. Secretary, T. A. Rosenwald, Albuquerque, N. M.

June 11-12—SOUTHEASTERN ASSOCIATION OF FIRE CHIEFS. Annual meeting. Valdosta, Ga. Secretary, Chief Walter W. Stephen, Monsanto Chemical Company, Anniston, Ala.

June 16-19—ILLINOIS FIRE COLLEGE. 18th annual meeting. Univ. of Illinois, Champaign-Urbana, Ill. Secretary, Chief Roy W. Alsip, Champaign, Ill.

June 17—NORTHWESTERN OHIO VOLUNTEER FIREMEN'S ASSOCIATION. 39th annual meeting. Delphos, Ohio. Secretary, J. W. Gardner, Ashland, Ohio.

June 17-20—ARIZONA STATE FIREMEN'S ASSOCIATION. Annual meeting. Prescott, Ariz. Secretary, H. W. Reggin, Prescott, Ariz.

June 22-25—COLORADO STATE FIREMEN'S ASSOCIATION. Annual meeting. Durango, Col. Secretary, G. Turnbull, 215 Boston Bldg., Denver, Colo.

June 23-26—IOWA STATE FIRE SCHOOL. Annual meeting. Ames, Ia. Lindon Murphy, Director.

June 24—IOWA FIRE CHIEFS ASSOCIATION. Annual meeting. Ames, Ia. L. R. Morris, Secretary-Treasurer.

June 25-27—EASTERN ASSOCIATION OF FIRE CHIEFS. Annual meeting. Reading, Pa. Secretary, Chief Charles E. Clark, Box 217, Wayne, Pa.

June 25-27—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting. Mechanicsville, N. Y. Secretary, Chief Chris W. Noll, Poughkeepsie, N. Y.

July 1—TEMISKAMING FIREMEN'S ASSOCIATION. Annual tournament. New Liskeard, Ont. Secretary, F. E. Thompson, Box 686, New Liskeard, Ont.

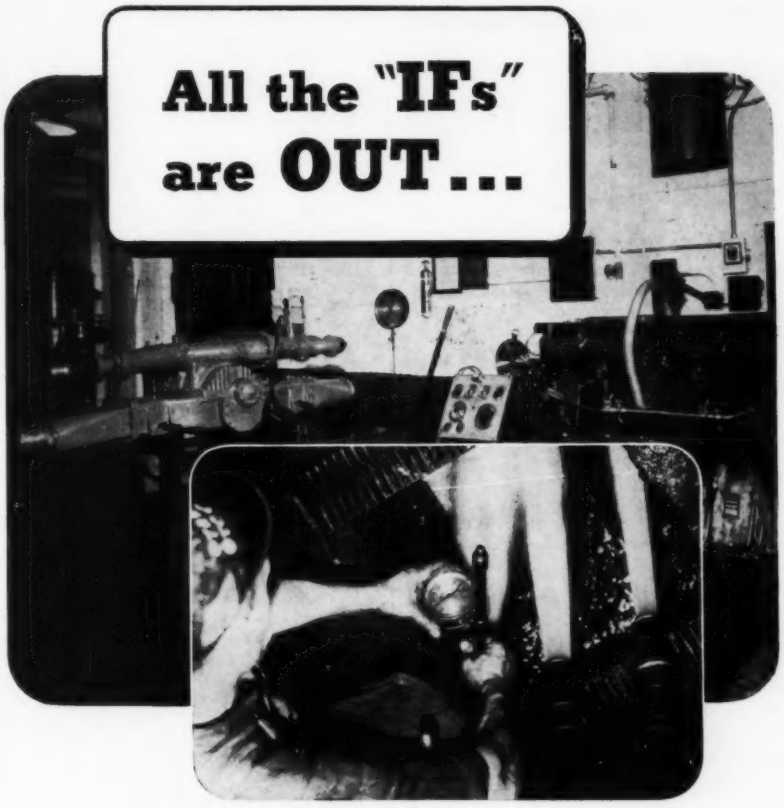
July 14-15—MICHIGAN FIRE SCHOOL. University of Michigan, Ann Arbor. Director, Dr. C. A. Fisher.

July 15-17—MARITIME FIRE CHIEFS ASSOCIATION. Annual meeting. Kentville, N. S. Secretary, Charles A. Cunningham, St. John, N. B.

July 20-21—WISCONSIN STATE FIRE CHIEFS ASSOCIATION. Annual meeting. Rhinelander, Wis. Secretary, Arthur A. Buss, Wausau, Wis.

Aug. 4-7—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 70th annual meeting. Grand Rapids, Mich. Secretary Chief Daniel B. Tierney, Arlington, Mass.

Aug. 11-14—DOMINION ASSOCIATION OF FIRE CHIEFS. Annual meeting. Kitchener, Ont. Secretary, Chief James Armstrong, Kingston, Ont.



WATEROUS Fire Pumps are ready for immediate service when they leave the factory. Every pump is tested according to contract requirements for several hours and is thoroughly "broken in" before shipment. Above are views of the test room showing a WATEROUS Model CD-1000 GALLON two-stage centrifugal undergoing final tests. Specify WATEROUS for dependability.

Waterous Est. 1886

WATEROUS COMPANY • ST. PAUL, MINNESOTA

WATEROUS

CENTRIFUGAL-ROTARY

FIRE PUMPS

FIGHT MAGNESIUM FIRES AND INCENDIARY BOMBS WITH *Reilly* COAL TAR PITCH

Effective Method Developed by U. S. Bureau of Mines—

MAGNESIUM FIRES and magnesium incendiary bombs require special methods of handling. Application of water, carbon tetrachloride, carbon dioxide, foam or other common extinguishing agents generally *speeds up* the rate of burning rather than stopping such fires. One of the simplest and most effective methods for extinguishing magnesium fires and incendiary bombs, developed by the Bureau of Mines, U. S. Department of the Interior, is the use of very hard coal tar pitch.

When spread over a hot magnesium fire the pitch softens and seals the burning magnesium metal with an airtight blanket—smothering the flames.

REILLY Pitch, of the type and sizing recommended for use in this method, is available through the 17 REILLY plants, located to serve all sections of the country. Bureau of Mines Bulletin on how to use REILLY Defense Pitch in fighting magnesium fires will be furnished on request.

Reilly COAL TAR PRODUCTS

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Jobbers to sell our Morning Pride Firecoat, with Wing Freedom Sleeves, Chest Protector, Face Protecting Collar, Waterproof-Wool Wristlets. No Dirt Pockets. Made from Protected Rubber Fabric. Write today. Morning Pride Mfg. Co., 1986 Home Ave., Dayton, Ohio.

FOR SALE

FIRST AID BLANKETS—66" x 84". 100% pure wool. No more after this lot; while they last, $10.00 each. Capt. Wm. Paul Babcock, Nyack, N. Y.

FOR SALE

USED CITY SERVICE TRUCK, standard equipment in perfect condition. For full particulars, write Box No. 20, c/o FIRE ENGINEERING, 24 W. 40th St., New York, N. Y.

Aug. 11-14—VIRGINIA STATE FIREMEN'S ASSOCIATION AND AUXILIARY. Annual meeting. Luray, Va. Secretary, R. B. Barker, Box 893, Newport News, Va.

Aug. 14-15—VERMONT STATE FIREMEN'S ASSOCIATION. Annual meeting. Middlebury, Vt. Secretary, W. H. Adams, Vergennes, Vt.

Aug. 18-19 — FIREMEN'S ASSOCIATION, STATE OF NEW YORK. Annual meeting. Syracuse, N. Y. Fred A. Davis, Fort Edward, N. Y.

Aug. 27-28—CONNECTICUT STATE FIREMEN'S ASSOCIATION. Meeting place to be decided upon. Secretary, D. W. Harford, South Norwalk, Conn.

Aug. 31-Sept. 5—PENNSYLVANIA FIREMEN'S TRAINING CONFERENCE. Annual meeting. Pennsylvania State College, State College, Pa. Secretary, Charles E. Clark, Box 217, Wayne.

September—NEW HAMPSHIRE STATE FIREMEN'S ASSOCIATION. Annual meeting. Meeting place to be decided upon. Secretary, Aubrey G. Robinson, Manchester, N. H.

Sept. 8-11—WESTERN PENNSYLVANIA FIREMEN'S TRAINING INSTITUTE. Annual meeting. California State Teachers' College, State College, Pa. Secretary, Joseph Huscroft, North Charleroi, Pa.

Sept. 9-11—TENNESSEE FIREMEN'S ASSOCIATION. 12th annual meeting. Nashville, Tenn. Secretary Joe J. Martin, Nashville.

Sept. 15-16—IOWA FIREMEN'S ASSOCIATION. Annual meeting. Tipton, Ia. Secretary, H. C. Reinholdt, Manning, Ia.

Sept. 18-19—NEW JERSEY STATE FIREMEN'S ASSOCIATION. Annual meeting. Meeting place to be decided upon. Secretary, Evan F. Benners, Room 602, 24 Branford Place, Newark, N. J.

Sept. 21-22—TEMISKAMING FIREMEN'S ASSOCIATION. Annual meeting. New Liskeard, Ont. Secretary, F. E. Thompson, Box 686, New Liskeard, Ont.

Sept. 21-24—CALIFORNIA STATE FIREMEN'S ASSOCIATION. Annual meeting. Fresno, Cal. Secretary, Harry E. Strasser, 2046 Oregon Avenue, Long Beach, Cal.

October — ARKANSAS STATE FIREMEN'S ASSOCIATION. Annual meeting. Fayetteville, Ark. Secretary, H. D. Compton, Central Fire Station, Little Rock, Ark.

Oct. 5-8—INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION, INC. 47th annual meeting. Atlantic City, N. J. Secretary, Irvin Shulsinger, 8 East 41st St., New York.

Oct. 6-8—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. Annual meeting. Allentown, Pa. Secretary, Charles E. Clark, Wayne, Pa.

Oct. 13-15—ILLINOIS FIREMEN'S ASSOCIATION. 55th annual meeting. Springfield, Ill. Secretary, Chief Roy W. Alsip, Champaign.

In Wartime . . . .

THE EMERSON RESUSCITATOR

Now, more than ever, fire departments must protect their communities against unnecessary asphyxial deaths from smoke suffocation, drowning, electric shock, and other causes, in addition to providing maximum insurance against wartime emergencies.

The Emerson Company is doing its share in the present crisis.

J. H. EMERSON CO.

22 Cottage Park Ave.

Cambridge, Mass.

REPRESENTATIVES IN PRINCIPAL CITIES

Chemical Plant Swept by Blast

Fire resulting from two explosions swept a Neville Island, Pa., chemical plant on the night of March 23rd, 1942, seriously injuring one employe and threatened to destroy six loaded tank cars of benzol, before the fire was brought under control.

The blasts ripped out most of the west wall of the two story brick building housing the chemical laboratory of the Neville Dauler Company's Benzol Division plant.

The flames fed by coal tar products stored on the first floor, could be seen for miles up and down the Ohio River valley.

Firemen concentrated several streams of water on the east end of the building to prevent the flames from spreading to six tank cars on a railroad siding, each of which was loaded with 9,000 gallons of benzol.

The Neville Township Volunteer Fire Department responded to the alarm with thirty firemen, a 500-gallon Ahrens Fox pumper and a 500 gallon Chevrolet pumper. Two streams with 600 feet of 2½-inch hose in service, and two streams with 500 feet of 1½-inch hose in service were used by the Neville Island Company. Help was summoned from McKees Rocks, a short distance above Neville Island and also from Coraopolis, Pa. which is located a short distance below the island, or approximately five miles from the scene of the fire. McKees Rocks firemen responded with a new American La France 500 gallon pumper and six men who used one stream with 250 feet of 2½-inch hose in service while the Coraopolis firemen did not go into service, the fire being pretty well under control by the time they arrived.

Neville Island is located on the Ohio River, about five miles below Pittsburgh and is about five miles long and about a half mile wide.

WILLIAM E. PATTERSON.

Air Raid Precautions Blamed for Grain Elevator Fire

The village of North Branch, Mich., is split by angry discussion as to whether or not its too perfect air raid precautions caused the destruction by fire of the village's only industry. The Harper Elevator burned on April 18 with a loss of $100,000. Because three citizens, after taking an F. B. I. course in civilian defense, persuaded the village to adopt a rule not to blow the fire siren unless there was an air raid, it was necessary to summon the volunteer firemen by telephone. By the time they arrived, the fire was out of control. One faction in the village argument contends that the firemen got there as soon as though siren-summoned; the other says the air raid precaution caused a fatal delay.

New Apparatus for Middletown, Cal.

The Fire Commissioners of Middletown, Lake County, Cal., have planned the purchase of two new fire trucks and new fire equipment to augment the present apparatus. Middletown's Fire Commissioners are Charles Kepner, John Irwin, Bert Norman, Bud Nevans and Alvin Tarry.

ALL ACME GAS MASKS PROVIDE FULL VISION

One of the important features that Fire Fighters have in the Acme All Purpose FD Gas Mask, is the Wide, Full Vision Lenses. These Lenses make it possible for the wearer to enter smoke-filled buildings, and have non-distorted vision Upward, Downward, and to Either Side. Acme Lenses make the task of walking in unknown localities more certain.

In addition, the Acme All Purpose FD Gas Mask provides protection against Carbon Monoxide (CO), Toxic Smokes, Illuminating Gas, All Individual, or Combination of Gases.

The ease with which the Acme Gas Mask can be worn, makes it unnecessary to draw the adjustment harness too tightly, thereby eliminating a discomfort which causes headaches, or other physical head distress. The mask can be adjusted to fit any normal size face.

To the right is shown the Acme type Doughboy Helmet which is made of Alloy Steel. Its durability will provide protection against falling shrapnel, bomb splinters, and other dropping fragments. The headband is cushioned to relieve shock, yet it fits firmly to the head after easy adjustments have been made to head size. It weighs only 1¾ lbs.

Write for Prices and Literature TODAY

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Patent Pending

BE KIND TO YOUR HOSE

—use a PRESSURE MASTER hydraulic Hose Shut-off to close down any charged line. Weight only 20½ pounds, easily carried and handled. The Pressure Master easily closes any charged line of 300 pounds pressure at any point on the line. It is so easy to operate that a 7-year-old boy can close down a line of 150 pounds. Water flow can be stopped in 10 seconds. With a PRESSURE MASTER on the line the hydrant is brought right up to the fire. It is simple, positive and efficient. Use it to close off pressure in case of burst lines, lengthening or shortening lines, reducing 2½ inch lines to smaller lines, connecting lines into water towers, taking lines up ladders or over roofs and many other uses. The unique design of the compressing members of the Pressure Master eliminate the heavy strain at the folds of the hose, common in other clamps. There is no undue strain at the folds. Every fire truck should carry a PRESSURE MASTER. *Send for four-page folder.*

THE PRESSURE MASTER COMPANY
HOMER NEW YORK

On Guard
-WHEREVER DUTY CALLS!
The Streamlined M·S·A
FIREMAN'S HELMET

This favorite modern Helmet has what it takes to meet the fireman's new head protection demands! Laminated bakelite, one piece molded, provides tremendous resistance to impact — the Helmet can't soften from exposure to water, grease, heat or common chemicals — supplies balanced comfort and wearing ease through long hours of emergency duty. Write for Bulletin No. DX-5!

MINE SAFETY APPLIANCES CO.
BRADDOCK, THOMAS AND MEADE STREETS, PITTSBURGH, PA.
District Representatives in Principal Cities

"DANDRY"— AMERICA'S QUALITY SALVAGE COVERS

In these days of emergency, "Dandry" Salvage Covers are playing a tremendously important part in the plans of Civilian Defense organizations for the protection of property, and because of their superior quality, "Dandry" Salvage Covers are being specified by leading Fire Departments and Defense Councils.

The major portion of our expanded facilities are now devoted to the requirements of our Armed Forces, but we are supplying all requirements to the best of our ability, subject, of course, to existing regulations.

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Manufacturers of Everything of Canvas
101 CROSBY ST. NEW YORK, N. Y.
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BUELL AIR RAID SIGNAL
A Warning that never fails!

THE BUELL AIR HORN An arresting tone heard long distances under all conditions. Easily adapted to coding. Fire and Police Departments, Ambulances, Air Raid Warnings; whenever there is an emergency the BUELL AIR HORN is dependable. Operates at any pressure. Will not wear out. Inexpensive and easy to operate, it can be installed at any source of air or gas pressure.

★ WAV-A-WAY Signal Light is another dependable BUELL product. Its concentrated oscillating beam clears the way for all emergency vehicles. Supplied with red or clear lens. ★

BUELL MANUFACTURING CO.
2992 COTTAGE GROVE AVE., CHICAGO, ILL., U.S.A.

Tribute to Civilian Defense Personnel

Leigh Danenberg, editor of the "Sunday Herald," Bridgeport, Conn., newspaper, paid tribute to the Civilian Defense workers and auxiliary firemen that worked courageously following the explosion that killed seven and injured over eighty workers at the Remington Arms plant in Bridgeport on March 28.

The editorial in Mr. Danenberg's paper says:

"There never was much doubt that the Civilian Defense workers of this State could take it, but, if there was any, it was dispelled by their efficiency and their courageous endurance following the tragic explosion and fire at the Remington Arms plant in Bridgeport, on Saturday afternoon, March 28.

"Within a comparatively few minutes after the explosion, the Civilian Defense units were functioning smoothly on the scene. They carried out innumerable assignments during the hectic first hours after the tragedy, and gave aid and comfort to scores of the injured or those suffering from shock and to tired and temporarily incapacitated members of fire and police and other rescue squads.

"If anything, the conduct of women Civilian Defense workers shone more brightly than that of the men. I have heard names of three or four women mentioned for outstanding service, but it would be a mistake to mention them because so many women did their jobs so well.

"Whatever consolation can come as an aftermath of the Remington blast must be in the knowledge that, despite inevitable mistakes, Civilian Defense in Bridgeport and in other cities in the State, is being whipped into effective units that withstand bitter strain and perform creditably.

"In praise for members of Civilian Defense groups, no one should forget the credit due the mostly unsung heroes and heroines, who work in munitions and gun shops in many parts of Connecticut. They take their lives in their hands hourly, doing it with a grin, because they know the hazardous work must be done, and it is up to them to earn their living doing it.

"They, too, can take it, as they are proving by the swelling volume of munitions they turn out."

THOMAS F. MAGNER.

Fire Official Loses Life in Blaze

City Fire Inspector George Wittenmyer lost his life in a $100,000 fire which swept through the F. W. Woolworth Company store in Ottumwa, Ia., on April 8.

Wittenmyer fell into the burning building, filled with dense smoke, from the roof which gave way beneath him.

Fairfield, Oskaloosa, Albia, Centerville and Bloomfield firemen aided the local fire fighters and succeeded in preventing the flames from reaching adjoining structures on both sides of the Woolworth store.

The blaze was discovered at 4:30 a.m. The store recently had been enlarged to a double front and was completely remodeled.

Two buildings were involved in the fire, both occupied by the Woolworth store on the first floor.

The burned structure had a 75-foot frontage, in the heart of the Ottumwa business section. It was a mass of ruins when the blaze was extinguished nearly eight hours after the fire started. Two-thirds of the roof, the entire second floor and two-thirds of the ground floor collapsed.

For a time it looked as though the blaze was under control. In half an hour the flames shot up more fiercely than before and broke through the restraining fire wall into the Woolworth building.

Offices in the east building included an insurance and real estate office, an eye specialist's office, an accountant's office and a beauty shop. In the west building were the offices of the Southern Iowa Area Headquarters of the Boy Scouts, a studio, Underwriters Adjustment offices and a beauty shop. No records or equipment were saved from any offices.

Fire Endangers Armory

Fire, which endangered the San Francisco, Calif., National Guard Armory at 14th and Mission Sts., raced through a two-story frame and corrugated metal building on the evening of Feb. 25, caused four alarms and three special calls to be turned in, and did nearly $30,000 damage to equipment belonging to the United Blowers Company, 1441 Stevenson Street.

A passerby, noticing smoke, pulled Box 5215 at 14th and Mission. Vicinity Box 5116 was pulled by another citizen at 7:05 p.m., three minutes later. A second alarm followed at 7:06, a third at 7:08 and the fourth at 7:18. Soon after, a call was sounded for two small water towers and two insurance patrols. Another special call for the Ashbury high pressure system to begin operation was also sounded.

Assistant Chief Alfred Galli and Chief Charles Brennan directed the firemen who were aided by 100 auxiliary firemen. There were no injuries. The blaze was believed to have started in a shack adjoining the plant where crates were stored but definite cause was not determined.

The auxiliary firemen, trained for civilian defense work by the fire department, gave a good account of themselves, according to Chief Galli. "They had only one fault—they were a little too willing to take chances."

BOB GREENOCK

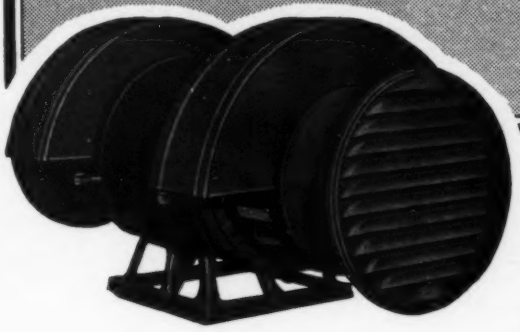
Fire Department Is Destroyed by Fire After Blaze

The Orchard Homes volunteer fire department, in suburban Missoula, Mont., answered a call at 9 a.m., on February 21 to the Swanberg Lumber company, where flames destroyed a warehouse filled with a large quantity of finished lumber.

Returning to their home garage, members of the fire department left their truck, only to find it ablaze less than three hours later.

Officials speculated whether the blaze in the fire department truck started from a spark received while fighting the lumber company fire or from an overheated stove. Nevertheless, it partially destroyed both the fire truck and the garage in which it was housed.

BE PREPARED NOW for LATER!



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You Can Depend On It *ALWAYS*

These are days of positive action. Now is the time to prepare for future eventualities, whether they be "Fire Alarms" or "Air Raids." Give your community the best possible protection you can. . . . Give it "Sterling Protection." Sterling Sirens are always ready for emergencies day or night. In the regulated, shrill vibrations of the STERLING SIREN ALARM you have the answer to both the fire alarm and air raid housed in one piece of equipment.

Oldest and Largest Exclusive Makers of Siren Signals

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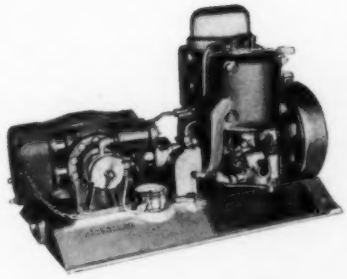
AMERICA IS "ALL-OUT" IN DEFENSE AGAINST FIRE . . .



Pacific Type "Y" Pumper — Capacity 60 Gallons per Minute

Protecting America's forests and natural resources is doubly important during these busy war days. All over the nation Pacific Portable Pumpers are in strategic positions ready to fight fire with water! PACIFIC MARINE SUPPLY CO., Seattle, is recognized as the leader in Portable Pumper Equipment development. Pacific Portable Equipment has been tested and approved under the most strenuous fire fighting conditions by Forest Protective Associations. Consult us on your fire protection problem.

"Fight Fire With Water"

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Manufacturers of the Famous Pacific Portable Pumper

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The SUPERIOR LIFE SAVING NET is stronger than any other, because of the tested breaking strength of 1,800 lbs. of each individual rope.

The direct pull shock absorber system eliminates all friction and its greater resiliency provides for a safer, easier landing.

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For ECONOMY, have your old net converted into a "SUPERIOR".

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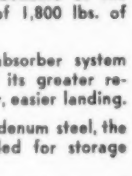

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Serving you—by serving the National Defense Program first.

America needs more Fire Hose today than ever before—so if your order is a little late—we're giving U. S. A. the right of way.

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QUAKER RUBBER CORPORATION
Main Office & Factory: PHILADELPHIA
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Houston Memphis San Francisco

CIVILIAN DEFENSE MATERIALS AVAILABLE TO SAN FRANCISCO

Allotments Made to Twelve Cities with Populations of Over 10,000

By BOB GREENOCK

SAN FRANCISCO hopes to soon have 240 emergency pumping units available for civilian defense work, 190 of them to be supplied by the OCD and the others through a purchase made by the city with emergency funds.

Announcement of allotments of civilian defense materials for this city and the Bay area was made by Jack Helms, regional director of the OCD, following communications from Washington.

Helms originally announced San Francisco had been allotted 156 OCD pumping units, to be delivered when contracts could be let and orders filled. The announcement, made to the Bay Area Civilian Defense Council which is headed by Mayor Angelo Rossi of San Francisco, brought immediate squawks, among them a vociferous one from the rotund Rossi who pointed out that 156 was a far cry from the 1440 units deemed necessary by Fire Chief Charles Brennan.

Helms later announced that, in recognition of the necessity of more equipment for San Francisco because of the wooden construction, vulnerability in case of air raids, many defense plants, military bases, etc., the city would be given thirty-four more units, a total of 190.

In the meantime, the Board of Supervisors approved purchase of 50 additional units with emergency funds and a Pennsylvania company has guaranteed to have twenty of the units ready in twenty-four days, the other thirty to be delivered at the rate of ten a week after that.

However, trucks will have to be found on which to mount the units for they are merely pumps. Chief Brennan said, however, that he has been assured that trucks can be rented by the city for the duration, even if none are available for purchase.

The same will hold true for the units to be supplied by the OCD. Two types will be available: front mount and powered by the driveshaft of the vehicle upon which it is to be mounted; and a self-powered pump mounted on skids.

Chief Brennan announced that an order for three 1000 gallon pumpers and two tractors for pulling truck companies had been placed. All will be powered with the 12-cylinder, 240 horsepower motors. The pumpers will cost $41,670 and the tractors, $19,653. Money for them came from the regular 1941-1942 budget item used to purchase replacements.

Announcement of allotment figures brought immediate comment from members of the Bay Area Civilian Defense Council. There are nine counties represented in the council but several of the counties are not considered as having all their territory in the region and apparently will have to shift for themselves.

The allotments were made to twelve cities in the area having 10,000 population or more on the basis of the 1940 census. The OCD apparently did not take into consideration that there is a great flux in the population at this time and that allotments made would be far from adequate. Further, no allotments were made for persons in towns under 10,000 or for those living in the country.

Members of the council complained that at least four cities had been neglected on the basis of the 10,000 population figure and one representative produced figures to show that even the 1940 census credited his community with 12,000.

The council member of Marin County, which received not a single piece of equipment in the present allotment, spoke of San Rafael, San Anselmo, Mill Valley, Fairfax, Kentfield, Ross, Corte Madera and Larkspur, pointing out that they were contiguous, and together had a population of about 20,000. The Hamilton Bomber Field Base nearby would attract raiders.

Cities provided for in the allotment are: Alameda, Albany, Berkeley, Burlingham, Oakland, Palo Alto, Richmond, Redwood City, San Leandro, San Mateo, San Francisco and Vallejo. They have a total population of 1,428,525 and exactly that many gas masks were allotted, one to a person in each city.

Pumping units, outside San Francisco, were alloted as follows: Alemeda, 7; Albany, 2; Berkeley, 8; Oakland, 70; Burlingham, 3; Palo Alto, 6; Richmond, 5; Redwood City, 6; San Leandro, 5; San Mateo, 4; and Vallejo, 5.

Other equipment for the area (12 cities) included: Surgical equipment for 285 teams; surgical equipment for 142 casualty stations: 1140 stretcher; 3420 folding cots; 2565 first aid belts; 1428 identification tags; 85,680 arm bands; 42,840 gas-proof capes; 13,241 sets of block fire fighting equipment consisting of pails, extinguishers, handpumps, shovels, etc.; and 5712 sets of firemen's helmets, hip boots, turnout coats, bunker pants, and gas-proof clothing. There were 28,560 steel helmets alloted to the area for use of air raid wardens, auxiliary police, etc.

Chief Salsman Dies

Chief William R. Salsman of the Saugus, Mass., Fire Department died on April 25th.

The Chief who had been a member of the fire department for twenty-five years was appointed Chief in 1936. He had been active in firemanic circles, serving as a member of the Massachusetts Fire Chiefs Club, the New England Association of Fire Chiefs and the International Association of Fire Chiefs.

Fairfield County Chiefs Meet

Professor Howard Dietrich of Yale University was the speaker at the March meeting of the Fairfield County Fire Chiefs' Emergency Plan held at the Southport Firehouse in Fairfield, Conn. on March 25th, 1942.

Professor Dietrich discussed the chemistry of fire relative to fires caused by incendiary bombs and demonstrated phosphate, thermite and magnesium bombs, as well as so-called calling cards and sabotage pencils. He also mixed and demonstrated the reactions of soda and acid extinguishers and foam extinguishers, when put into use at fires.

Chief Fred von Holtz of the Southport Fire Department, President Harry Williams of the Department, Commissioner Edward von Holtz and J. W. Perry, chairman of the Board of Finance of the town of Fairfield welcomed the visiting officers and guests, as did First Selectman John Ferguson, who said that this is a war of the civilized against the uncivilized and that we should all be proud to be on the civilized side.

New members elected to membership were: William A. Breese, Asst. Chief, Electrolux Fire Department, Old Greenwich; Captain Fred Smith, Turn of River Fire Department; Asst. Chief Robert A. Woodruff, Stepney Fire Department; Captain Stuart A. Upson, Stepney Fire Department; Chief Robert Lewis, Jr., Stepney Fire Department and William Glen Road, Second Assistant Chief, Stepney Fire Department.

President Stuart Potter appointed the following committees:

Nominating: Commissioner Clifford Merwin, Chief Thomas Carroll, Chief John Disbrow, Chief Oscar Thomsen, Jr. and Chief William Hearing.

Banquet Committee: Commissioner Edward von Holtz, Commissioner Clifford Merwin, Asst. Chief John French, Chief Sydney Stapley and Chief John Moehring.

Asst. Chief William Sturgis of Ridgefield, Chairman of the Standardization Committee, reported that the towns of Greenwich, Ridgefield and Darien had standardized their equipment to National Standard Thread using tools provided by the New England Exchange and others.

Chief JOHN MOEHRING.

An Air Raid System for Los Angeles

Extensive tests have been made under the direction of Fire Chief John H. Alderson, on many types of sound equipment. Experiments with amplifying equipment were made in the mountains and the lowlands. This equipment was rejected due to the complexity of the installation and the problem of maintenance.

Los Angeles covers an area of 454 square miles. The city has a number of hill districts and a mountainous area. The traffic congestion is heavy. Tests made both in outlying and downtown districts show that is was impossible to break through local sound concentrations with sirens which were remote.

The city has now purchased 145 one-half horsepower sirens and 60 three and seven and a half horsepower sirens. The smaller sirens are being placed on street traffic signals at intersections. In the downtown area these sirens will be two

Specify HALE

FIRE PUMPS HALE CONSHOHOCKEN PA.

Hale pumping units, like Hale Fire Pumps, are known for consistent reliable performance.

Pioneered in 1936, used throughout the world, the Hale 500 GPM pumping unit sets new high standards of performance.

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Write today for the Catalog and Folders on the complete line of Hale Pumps.

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NATIONAL DEFENSE
calls for a good
FIRE DEFENSE
and a good fire defense calls for

AKRON BRASS
FIRE FIGHTING APPLIANCES

Every Fire Department must bring its personnel and appliances to an 'On the Alert" basis in order to provide maximum protection to its community.

Prepare your community to meet and cope successfully with the increased fire hazards which threaten our country because of the war by providing Akron Brass fire fighting appliances to your fire fighters.

Akron Brass products are designed and built to withstand hard usage and at the same time deliver maximum efficiency. For more than 20 years the name of Akron has represented leadership in research and development of first line fire fighting appliances.

SOME FAMOUS AKRON PRODUCTS

Drop Forged Rocker Ring Couplings	Quarter Turn Nozzles	Rogers Rope Tool
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Roll Pin Couplings	Tannic Acid Kits	Fits-All Nozzle Holder
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Shut-Off Nozzles
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Underwriters' Industrial Extinguishers

38 years' service in the fire field

Prompt service - Quality products

Send for illustrated folder on the New Elkhart Mystery Nozzle.

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WENTWORTH FIREMAN'S UNIFORM CAPS
UNION MADE PROMPT DELIVERY

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Wentworth Fireman Caps are made of the Highest Quality Standard Materials available by the Best Skilled Union Craftsmen. Our 46 years of experience and skilled workmen guarantee you AMERICA'S GREATEST CAP VALUE in all WENTWORTH FIREMAN CAPS.

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Wentworth Fireman Caps are made in all the New and Standard styles. Bell Top, 8-Point, Military, etc. Write direct for latest circular and prices or see your local dealer.

WENTWORTH-FORMAN CO., INC.
578b Washington St., Boston, Mass.
Manufacturers
Fireman Cap Specialists For Over 45 Years.

blocks apart at staggered intersections. On Wilshire Boulevard and other main arteries they will be three to four blocks apart. The sixty large sirens are being installed on fire stations, mounted on towers constructed of steel scaffold, covering the quiet residential districts.

The entire system will be operated by one control at Fire Alarm Headquarters. An automatic timer will give the two minute fluctuating and the two-minute continuous signal. Telephone lines have been leased to outlying sections over which will go the impulse to operate the switch at the siren.

Speed Needed for Incendiary Bomb Fires

The (British) Ministry of Home Security has now come to the conclusion that the necessity for speed in dealing with a number of bombs falling simultaneously on a target, and adjoining risks, requires the use of jets and not spray from stirrup pumps.

This, in itself, points to the fact that the stirrup pump—which requires almost as many people to put it to work that a motor pump does—is not speedy enough; especially when the incendiary bombs are released in large numbers from containers. Trained firemen, each with a knapsack pump, are the only solution of this problem.

The knapsack pump can be taken anywhere that a stirrup pump can—and with greater facility. It offers greater protection to the operator when he has, by reason of smoke, to fight in a prone position. Instantly slung off his shoulders and placed before him, the five gallon water container puts a shield of two thickness of metal, with a wide "sandwich" of water between him, the heat, or the flying fragments of an explosive incendiary bomb. And he can still draft water from it and project jet or spray on the target.

It is cheap; it can be made in Britain; it can give jet of thirty foot range, or spray at the will of the operator; it is far easier to pump than is the stirrup pump; it conserves water and reduces water damage. In fact, it is so good that all the latest turntable ladders in New York and other American cities carry at least four of these knapsack pumps, ideal for urban or rural use. These pumps are better in the hands of fire-guards than are the light trailer pumps that are being issued to them.

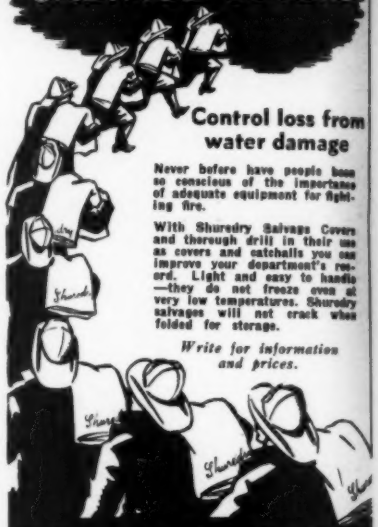
(*Reprinted from March, 1942, issue of FIRE, the official journal of the Imperial Fire Service of Great Britain.*)

March Fire Loss

Fire losses in the United States during March were $30,505,000, according to the estimate given out by the National Board of Fire Underwriters. These estimated losses, under fire insurance policies, are on an incurred basis, including an allowance for unreported and uninsured losses.

The total of $30,505,000 for fire losses in March shows a drop of $966,000 or three per cent from the total of $31,471,000 reported for the same month a year ago. It is $314,000 or one per cent less than the total of $30,819,000 reported for February of this year. The decreases mark the first break in a year in the fire loss increases over the corresponding month the year previous.

USE Shuredry SALVAGE COVERS



Control loss from water damage

Never before have people been so conscious of the importance of adequate equipment for fighting fire.

With Shuredry Salvage Covers and thorough drill in their use as covers and catchalls you can improve your department's record. Light and easy to handle—they do not freeze even at very low temperatures. Shuredry salvages will not crack when folded for storage.

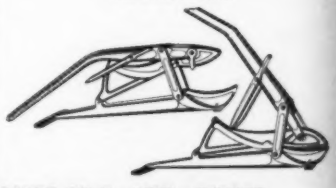
Write for information and prices.

Fulton Bag & Cotton Mills
Manufacturers since 1870
Atlanta St. Louis Dallas Minneapolis
New York New Orleans Kansas City, Kan.

THE NEW PEERLESS HOSE CLAMP

Type E. The Result of 30 Years' Experience in Hose Clamp Production Based on Actual Use in Fire Service

SIMPLE CONSTRUCTION—OPEN READY FOR USE—WEIGH ONLY 17 POUNDS—INSTANT APPLICATION—ONE OPERATION—LIFT THE LEVER—HAS AUTOMATIC LOCK



SAVES TIME—MEN—EFFORT
Making New Methods Possible.

APPLY CLAMP ON FLAT HOSE
Check Water—Carry the Line Up Ladder or Into Warehouse Empty—Release Man at Hydrant to Help Handle Line.

SAVE TIME IN MAKING CHANGES
No Tracing of Lines—To Shut Down—Instead Use the Men to Make the Changes.

SPECIFY
The NEW PEERLESS on NEW MOTORS
AND GET THE BEST
Sold by All Reputable Dealers
Patented U. S. and Canada
MANUFACTURED BY
KELLAM MANUFACTURING CO.
ATLANTA GEORGIA

SEALAND TRAILER PUMPS

These mobile trailers made in 150, 250 and 500 gallon units are powered with gasoline motors, carry 500 ft. of double jacket Fire hose, and may be equipped with 100 gallon booster tanks. Skid mounted units can be furnished. Pumps can be purchased without trailers.

THE SEALAND CORP.

Centrifugal Pumps—Fire Alarm Systems—Modern Fire Apparatus

SAUGATUCK, CONN.

LOST MANPOWER *can't be* **REPLACED**

Because of high priorities on machinery and equipment, all sorts of safety measures are being taken to preserve them, yet safety of personnel and vital manpower, which can't be replaced, is frequently ignored.

Look around, Mr. Chief—examine those old obsolete buildings that are being fitted into the defense program — you can do your part to preserve this vital manpower by recommending the POTTER SLIDE FIRE ESCAPE. Hundreds of lives are saved annually by these fire escapes.

The recommendations of our experienced engineers are yours for the asking, without any obligation to you.

Write for detailed literature.

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SLIDE FIRE ESCAPES

James A. Flynn, Pres.
6160 No. California Ave.
CHICAGO ILLINOIS

Roi B. Woolley in Hospital

Roi B. Woolley, founder of the Fire Chiefs' Emergency Plan of Westchester County, former Assistant Chief at Larchmont, N. Y., and Research Director for a large publication in New York City, was seriously injured recently while fighting a fire at Larchmont. He fell through an opening in the roof of a building, dropping two stories, and fractured a vertebrae in his spine. He is at present in the New Rochelle Hospital, New Rochelle, N. Y., where it is reported that he is on the road to recovery.

Mr. Woolley was recently appointed Fire Defense Coordinator for Westchester County. He is well known to the readers of FIRE ENGINEERING as the columnist who conducts "The Watch Desk" and "Warfare" departments.

Porto Rican Fire Department Calls for Equipment

Governor Rex G. Tugwell of Porto Rico, has requested $396,800 for fire equipment to be taken from a $600,000 Civilian Defense Fund voted by the Legislature to establish the first Fire Department in the island's history. Plans together with an outline of the proposed organization were sent to Major General L. D. Gasser of the War Department's Board for Civilian Protection in Washington.

In a report rendered to General Gasser it is said that fifty-two stations with trucks capable of pumping 750 gallons of water per minute and seventy-one with trucks of 500 gallons capacity would be needed for a fire department consistent with the standards established in large cities and areas of equal size in the States. However, it has been decided that the size of the Island and the peculiar circumstances involved will allow for the formation of a single department covering all Puerto Rico. This setup would require seventeen first class stations with trucks of 750 gallons capacity; twelve second class stations with truck of 500 gallons, and eighty-five third class stations equipped with complete chemical fire fighting equipment and all other materials, excepting pumping trucks.

E. SANCHEZ ORTIZ

New Chief for Cairo, Ill.

Willard Mason became Chief of the Cairo Fire Department on April 1, succeeding Chief Peter Lind.

Chief Lind has headed up the department for thirty-two years. His entire service in the Fire Department has been as Chief. He was appointed by the Mayor in 1910 several years before the department was motorized.

Front Cover Picture

The illustration appearing on the front cover of this issue shows a fireman being thrown from a roof by an unruly line of hose at a fire in Philadelphia, Pa., on April 9. Apparently, water arrived at the nozzle before the line had been made fast to some support, and the one fireman was unable to handle the line alone. The fireman was seriously injured by the fall to the roof of the adjoining building.

MIDWESTERN FIREMAN'S COAT

With Detachable Lining

This coat, furnished in different materials, has a special feature a detachable lining, of pure wool. This feature makes it adaptable to all conditions of weather and assures you of the warm, dry protection that only MIDWESTERN can offer.

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SEE HOW NICE IT FITS..!

ONE PIECE ONE MOVE and Your Face Is COMPLETELY COVERED!

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HEALTHGUARD MASK

★ You can see by the above illustration how snugly the Healthguard Mask fits your face.

This mask may be worn for protection from wood smoke and numerous acid fumes and gases, by simply changing from one cartridge to another. Not a single dissatisfied user among hundreds now wearing this Healthguard Mask. Comes packed in a neat metal carrying case.

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CHICAGO EYE SHIELD COMPANY

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"SAFETY FIRST—and ALWAYS"

In Case of Fire

What will your water lines deliver? Better find out before it's too late.

Static pressure may give a false sense of security. But—Dynamic pressure tells the real story.

Let us tell you the whys and wherefores about the—

Victor Hydro Static-Dynamic Pressure Test Pipe.

Made in the U. S. A. by

VICTOR INDUSTRIES

271 NEW YORK AVENUE, HUNTINGTON, N. Y.

"FIRE AND SAFETY" DIVISION

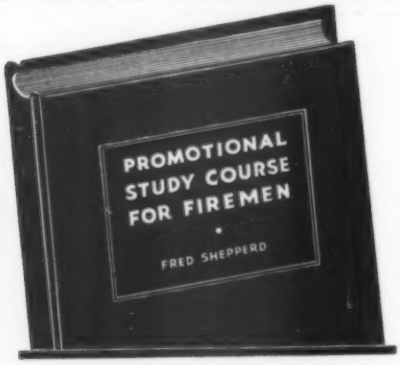
EDDY

Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience goes into their manufacture and they embody valuable and exclusive features.

Write for the FACTS.

EDDY VALVE CO., Waterford, N.Y.



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- *For the ambitious Fire Fighter studying for promotion*

350 Pages - Cloth Bound

By Fred Shepperd. Published in response to numerous requests from fire department officers and men working for advancement, this new book embraces the famous "Promotional Study Course" which ran serially in FIRE ENGINERING during the past few years and proved to be so tremendously popular. Covering in chapter lessons most of the important phases of fire protection promotional study—mainly in questions and answers form—all of it is in the concise style generally used and preferred by civil service examiners.

To fire chiefs and other officials responsible for preparing examinations, this book will be found most helpful. And it is a mighty good reason, too, why fire officers and men should find it of inestimable value in studying for advancement.

$3.00

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CASE-SHEPPERD-MANN PUBLISHING CORP.

24 WEST 40th STREET, NEW YORK

Magee Now in the Service

Chief Richard A. Magee of the Truro, Mass., Fire Department, is now Major Magee, in charge of fire prevention and control and prevention of sabotage of three airplane plants. His commission is in the Army Air Forces, Materiel Center, Midwestern Procurement District, Wichita, Kans.

Chief Kuehlthau Rounds Out Twenty-Six Years

Chief George H. Kuehlthau of the West Bend, Wis., Fire Department has served twenty-six years in the position of Chief. He joined the department in June, 1890, was elected as Assistant Chief in 1904, in which post he served until he became Chief in 1916.

Rubber Tires Banned on Fire Apparatus Trailers

Because of the critical shortage of rubber, the War Production Board on April 14 prohibited the use of rubber tires on auxiliary trailers for fire apparatus manufactured or delivered after that day.

The fire equipment section said that steel-rimmed wheels will be satisfactory for use on the auxiliary trailer units during the emergency.

It was also announced that Preference Rating Orders P-45 and P-108 covering material entering into production of motorized fire apparatus and fire protective equipment have been extended until June 30. The orders would have expired on April 18.

New Apparatus for Newark

The City of Newark, N. J., has awarded a contract to the New Jersey Fire Equipment Company for two Pirsch seventy-five foot tractor-trailer aerial ladder trucks for the fire department of that city. Delivery is estimated in about ten months.

Auxiliaries Aid in Fighting Fire

A three-alarm fire in a San Francisco paper stock warehouse and processing plant gave the city's auxiliary firemen their first chance to use the schooling they have been receiving from regular firemen in preparation for fires resulting from air raids and incendiary bombs.

A class of 500 auxiliaries had been assembled at Fifth and Brannan Streets when the chief giving them instructions received the second alarm over his radio.

The auxiliaries piled into private cars and after being warned by the chief in charge to keep out of the way of apparatus responding to the alarms, drove to the scene.

Then, having reported for duty, they were assigned to aid various companies in dragging hose, manning ladders and handling play pipes.

It was their first chance to test their newly gained knowledge and the way they handled themselves proved to regular firemen that they were not only a big help, but by no means were in the way.

Chief Charles Brennan, who personally directed the efforts of the fire fighters, commented, "They're pretty good. They seem to know what's wanted."

BOB GREENOCK

One of 70

TYPE WS
MASTER
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LIGHTS

EMERGENCY LIGHTS
for
FIRE CHIEFS

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Notice the perfect balance with beam turned up or down. Use rechargeable batteries now.

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A MASTER-LIGHT
FOR EVERY NEED

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"MASTER ★ LIGHT ★ MAKERS"
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A Recently Developed Treatment for Burns and Skin Irritations!

LANYARD

TANNIN-GLYCEROL LOTION

Fire Fighters—here is what you have been looking for: An instant help for burns and skin irritations. When applied to first degree burns, it allows you to remain on duty; no bandaging necessary. It reduces the pain and speeds up the recovery. TANNIN-GLYCEROL LOTION can also be used as a skin protection against fire—heat—fumes—gases—vapor—steam or oil. One ounce is sufficient to completely cover a 150 lb. man. It is water resistive, yet does not hinder perspiration or interfere in any way with your physical activity. It comes in glass containers with plastic caps from 1 ounce to 1 gallon sizes.

Write for descriptive literature.

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LANYARD CHEMICALS, INC.
Pharmaceuticals
37 HARTFORD ST., BOSTON, MASS.

Baltimore Auxiliaries Trained in Six Stations

Baltimore, Md., Auxiliary firemen are now being trained at six stations in the city. The first class is expected to go into active fire service shortly. Due to their large number, (2500 being enrolled) it will be necessary to assign the auxiliaries to fire duty for limited periods each week. They will respond on regular apparatus during their duty periods.

Auxiliaries also will take over operation of the auxiliary fire pumpers which will be allotted the city by federal authorities. Several new pieces of regular fire apparatus are being assigned to companies, to replace old apparatus.

OTIS SMITH.

Conventions Called off Because of War Emergency

The New England Association of Fire Chiefs has decided to call off its convention for this year, which was scheduled to be held at Rutland, Vt., in June.

Because the New England area is considered one of the most vulnerable to attack, the officers of the Association felt that a postponement of the meeting this year would be in order.

The Dominion Association, Southeastern Association and Eastern Association of Fire Chiefs are going ahead with plans for their annual meetings. The Missouri Valley and the Pacific Coast, on the other hand, have postponed their conventions with the recommendation that instead of going to two meetings this year, members of the Association make an effort to attend the International meeting at Grand Rapids alone.

Col. Goldsmith With O.C.D.

Clarence Goldsmith, assistant chief engineer of the National Board of Fire Underwriters, has been appointed chief consultant to the Fire Defense section of the Office of Civilian Defense, Director James M. Landis announced on April 27. Mr. Goldsmith will advise on fire department organization for civilian defense, fire defense education, training auxiliary firemen, and designing fire fighting equipment, Mr. Landis said.

Since 1907, Mr. Goldsmith has served as a staff member of the National Board of Fire Underwriters. From 1911 to 1915, he was loaned to the city of Boston to supervise design and construction of its high pressure fire system. As a major in the Quartermaster division of the U. S. Army, he served as principal engineer in charge of water supply from 1917 to 1918. He still holds a Lt.-Col., Q. M. Res.

During the past 18 years, Mr. Goldsmith has been intimately associated with firemen's training programs throughout the country. For the last 13 years, he served as chairman of the Fire Service Extension committee of the National Fire Waste council of the U. S. Chamber of Commerce. He is a member of the International Association of Fire Chiefs and is on the Fire Apparatus and Electrical committee of the National Fire Protection association. He belongs to the American Society of Civil Engineers, American Institute of Electrical Engineers, and the American Society of Mechanical Engineers.

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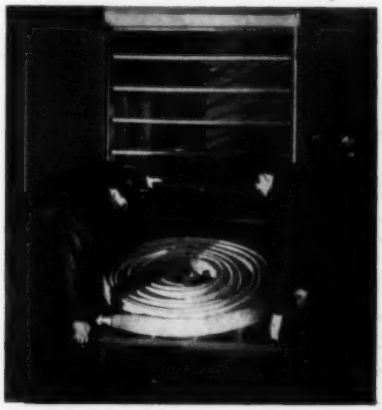

The ARMY and NAVY, many huge Defense Industries, and Municipal Fire Departments from Coast to Coast are using CIRCUL-AIR Fire Hose Dryers to make the available hose supply "go farther". Let us solve your hose drying problem, too.

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FIRE APPARATUS
and
FIRE
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The WHEAT SPOTLIGHT

a MUST under the **NATIONAL DEFENSE PROGRAM**

Fire Departments today are called upon to protect the industries that produce our National Defense Program. Equipment built for endurance as well as rugged service is paramount. The WHEAT Spotlight fills one of these demands. With its 25,000-candlepower light, its 100-hour bulbs and 1000-hour battery, it stands ready at all times to answer any demand made on it.

Its battery is rechargeable, without removing it from the lamp and the entire lamp only weighs 6 lbs.

Its light weight and convenient shoulder strap makes it not only a MUST for your department but invaluable because it allows the operator to have both hands free for other duties such as ladder or hose work—

Write for full information.

KOEHLER MFG. CO.
MARLBORO, MASS.

"U.S." PORTABLE LIGHT PLANTS

1250 and 2500 WATTS

This 1250 watt, portable unit has been designed expressly for fire department use. It is small, light, compact and equipped with carriers for easy portability out on the job. Air-cooled 4-cycle engine 2⅝" bore x 2⅝" stroke. 2.4 H.P. 2 gallon fuel tank. Quick starting. Also 2500 watt size.

LARGER SIZES AVAILABLE

Write for Catalog.

UNITED STATES MOTORS CORP.
430 Nebraska Street, Oshkosh, Wis.

Manufacturers' Announcements

(*Continued from page* 303)

Mine Safety Adds Two Products

Two new first aid items have been added to the extensive Mine Safety line. The new items include the M. S. A. Folding Stretcher Outfit and M. S. A. Wood Traction Splint.

The Folding Stretcher which is suitable for fire trucks, police cars, commercial trucks, etc., is but forty-nine inches long when folded and can be opened to full size army type. The frame is made of selected dried ash, and all metal parts are of malleable iron. The cover is of twelve ounce duck. Included in the all-weather dust-proof steel case (just fifty-three inches long) are the Folding Stretcher, a wool and a rubber blanket, four wood splints, two chemical hot pads and a sixteen-unit All-Weather First Aid Kit.

The new M. S. A. Wood Traction Splint is designed for use in supporting fractures of the arms or legs according to the accepted traction method prescribed by the American Red Cross. The Splint, made of clear, hard maple with chamfered edges and shellac finish, can be extended to sixty-six inches and telescopes to a compact size that is easy to pack and carry. Quickly adjustable to the patient, the splint is securely locked by bolts with wing nuts and knurled washers.

Yellow Stripes on Midwestern Fire Coats

Midwestern Manufacturing Company of Mackinaw, Ill., announce that in accordance with recent Government regulations they are changing the two white horizontal stripes in their fire coats to yellow stripes. The yellow stripes have been found to be equal in every respect to the white stripes. Midwestern state that during the past few months fully seventy-five per cent of their output has been going to Government Ordnance Plants. Orders for firemen's coats—with the yellow stripes—from municipal fire departments can however, be filled within thirty days from the date they are received.

Licenses for Practice Incendiary Bombs

The Baltimore Fireworks and Specially Company of Baltimore, Md., distributors of practice incendiary bombs, have been advised by the Explosives Control Division, Bureau of Mines, Washington, D. C., concerning the application of regulations established under authority of the Federal Explosives Act to the sale and possession of practice incendiary bombs and explosives. This act forbids the manufacture, sale, possession, or use of all explosives and their ingredients except by licensed persons or by the military and naval services, in order to prevent such materials from reaching the hands of incompetent, unreliable, or disloyal persons, or potential saboteurs. Application for purchaser's license, allowing the purchase and use of practice incendiary bombs, may be made to local licensing agents (usually County Clerks or Clerks of Court), established in every county in the United States.

Bible of the Fire Service

THE FIRE CHIEF'S HANDBOOK

485 *Pages Profusely Illustrated*

By FRED SHEPPERD

Gives a practical, authoritative answer to almost every question that might come up in modern fire fighting practice.

A valuable reference guide for the progressive fire chief, and, too, for the fighter studying for promotion.

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FOR PROGRESSIVE FIRE FIGHTERS

A 254 page book, 185 illustrations, flexible Fabrikoid binding, by Fred Shepperd, Editorial Director of FIRE ENGINEERING.

Brings thoroughly up-to-date the subject of hydraulics as it pertains to every phase of fire-fighting—in simpler, more understandable and more complete form than ever. Not only that, it embraces, as well, many important new angles that have never before been covered anywhere. There are several brand new formulas, originated by Mr. Shepperd, and even old ones have been simplified or revised for greater accuracy.

"Fire Service Hydraulics" is a book every progressive fire fighter from the Chief down needs and should have.

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New DUPOR No. 20, Double Sponge Smoke Mask ($24 doz.)
and famous
"Nod & Shake", Fog-Proof
RUBBER GOGGLES ($18 doz.)
1 Sample of Each Sent
$3.50 POST PAID
H. S. COVER
68 CHIPPEWA ST.
SOUTH BEND, INDIANA

Fire Destroys Four Railroad Bridges

FBI agents and special railroad police are investigating four fires of incendiary origin which destroyed the same number of railroad bridges, all of them belonging to the Southern Pacific Railroad and located in the lush Imperial Valley in the extreme southern part of the California.

The first two fires occurred March 29. They involved two trestles on the main line near Niland and were discovered a few minutes before the fast Argonaut passenger train carrying 150 passengers approached the scene. The engineer on the train noted a red block warning signal and saw the fire on the tracks ahead. He managed to stop the train some distance ahead of the first trestle.

The bridge was burning strongly at the time and another trestle 700 yards ahead on the tracks was beginning to burn. Destruction of the trestles caused the company to reroute traffic until temporary structures could be erected.

Investigators who examined timbers from the burned trestles said they had been soaked with kerosene and oil, then set afire by arsonists or saboteurs.

On April 4, a farmer telephoned the railroad that two isolated branch line trestles were afire. One was over an irrigation ditch, the other over a dry wash. They are on a line which connects with the main line and which is used for shipments of vegetables and fruits in season.

BOB GREENOCK.

M&H
VALVES
HYDRANTS
and
PIPE LINE
ACCESSORIES

Dependable M&H valves and hydrants are vital for fire protection during war emergencies. Alert municipalities are installing more valves and hydrants than needed in peace times, keeping a larger reserve supply for emergency use. Write for Catalog 34.

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA

Cook Building Destroyed by Fire

The most disastrous fire in many years swept through the Cook Building, one of the larger business blocks in Webster, Mass., on March 20, completely gutting the four story building and causing damages said to exceed $135,000.

The fire was discovered at 6:30 A.M. in the basement of the F. W. Woolworth Company, which occupied the entire ground floor and basement. The third and fourth floors housed the Durffee House and real estate offices.

The fire swept through the basement and gradually worked up through the partitions in the rear of the building, breaking out on the roof and threatening the Racicot Block. With only an opening of two feet between the Cook and Racicot buildings, a water curtain was maintained by the use of a high pressure deck gun, and undoubtedly did much to save that building.

Tons of water poured into the basement from three sides of the building had no apparent effect on the flames because of the large stock of merchandise that was stored in the building. The Woolworth store suffered a loss estimated at $45,000.

It was the most disastrous fire since January 2, 1924 when the Eagle and Gilles Blocks were destroyed.

Webster's new million gallon standpipe showed good results by giving plenty of pressure on all the lines throughout the day.

Chief Belmore praised the department for their efficient work in preventing the fire from causing a conflagration.

GEORGE ROBERTSON, JR.

HOW WELL IS YOUR COMMUNITY PROTECTED?

THE possibilities of incendiary bombs and fires caused by saboteurs are real! Greater responsibility than ever before is being charged to our Fire Departments. Modern, dependable fire-fighting apparatus is needed to conduct and combat modern warfare. Write today for information.

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ELMIRA HEIGHTS NEW YORK
"Fire Apparatus of Quality"
NEW YORK BRANCH
139th St. and Southern Blvd.
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"ALL AMERICAN CHOICE"
INVINCIBLE NOZZLES
PREPARE — PROTECT
Portable equipment is the watchword of today.
Buy—
INVINCIBLE NOZZLES
and enjoy the benefits derived by experience of the pioneers in the nozzle field.

Fig. 403

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BOSTON, MASS.
1837 - - 1941

I PROTECT
THOUSANDS
OF LIVES DAILY

I am the
ATLAS
LIFE NET

And I know! Why in the training schools, for firemen, throughout the country, I alone save thousands of lives. Potential fire fighters have learned through experience to have confidence in me—I've never let them down! Why? I'll tell you—

A body weighing 160 lbs. falling from a height of 80 ft. lands with a force of 12,960 lbs., or over six tons. I have taken as much as 18,000 lbs. impact. Every day in the year I have taken these jumps, as many as 200 a day, without showing any weakness or strain.

That's just firemen jumping for training purposes—to say nothing of the numerous other jumps made at actual fires — I'll say I have saved thousands of lives.

Scientifically constructed shock absorbers take up the strain of these enormous impacts without rebound or shock on the men holding the net.

Remember when you are ordering a new truck or a replacement unit—specify ATLAS—Don't say merely, a life net.

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ATLAS FIRE EQUIPMENT CO.
26 WARREN ST. NEW YORK

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to be proud of
NOW
more than ever
BEFORE!

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The blue covered catalog is the latest published but write for our new price list. Only prices in the catalog on 14 karat gold items are still in effect. All auto plates are discontinued for the duration.

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This truck is equipped with the Pirsch Hydro-Mechanical hoist, America's first and original all-powered aerial ladder hoist which was designed, engineered and built in the Pirsch plant.

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While Pirsch aerial ladders, with about a half century of ladder building experience behind them, are outstanding for their fine design, workmanship and materials, their high safety factor is fully recognized by the men who are using them.

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Performance counts—ask the men who are using Pirsch Aerials!

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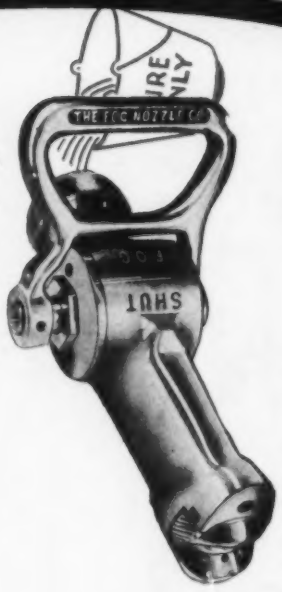
THIS

STRAIGHT STREAM NOZZLE



or THIS WATERFOG

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ONE GALLON OF

WATERFOG FROM A FOGNOZL

IS THE EQUIVALENT IN EXTINGUISHING ABILITY OF 30 GALLONS OF WATER DELIVERED BY A SOLID STREAM NOZZLE

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